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SECOND HALF OF 1917—No. 5

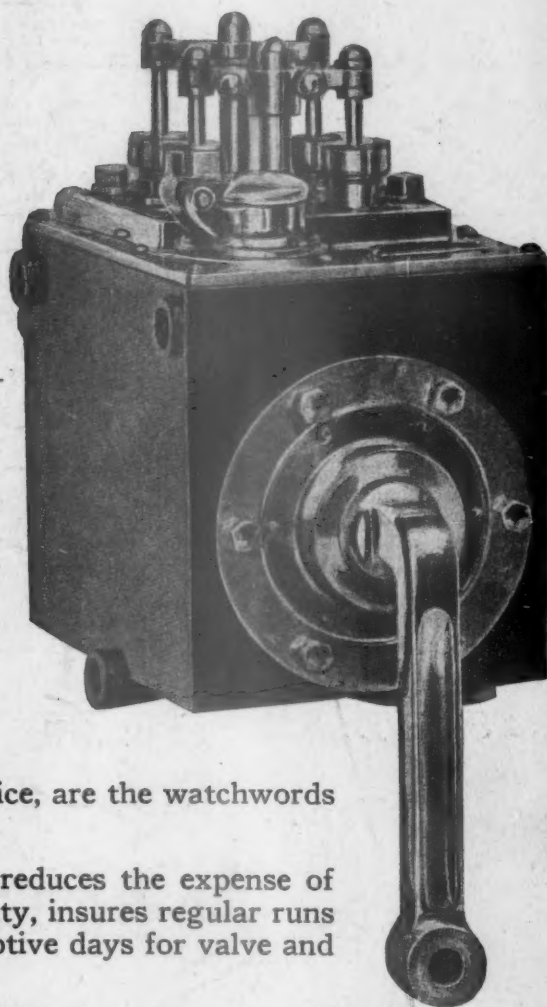
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Railway Age Gazette

Volume 63

August 3, 1917

No. 5

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GENERAL NEWS SECTION.....

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One of the questions which is presented to the engineering department frequently when considering the construction of a second track is that of the advisability of reducing the grade at a certain point to the standard prevailing on the remainder of the division or of building the second track on the existing heavy grade and installing helper engine service at this point. This problem is usually susceptible of fairly accurate analysis on the basis of the traffic existing at the time the estimate is made. The cost of reducing the grade on the present location or by means of an alternate line and the increased fixed charge which will result from the improvement can be determined with a reasonable degree of accuracy. One can also estimate the cost of helper engine service on the basis of present traffic and operating conditions so that a comparison of the two methods can be made easily. It is in looking to the future, as one must in planning an improvement of considerable magnitude such as this that difficulty is experienced. No particular trouble is presented in computing the cost of the alternate low grade line, for once the expenditure is made the fixed charges are constant. There is much more uncertainty in estimating the future cost of helper service. In the first place, the cost of this service varies with the amount of business handled until the capacity of the line is approached, when it rises rapidly. It is difficult to predict this future development of traffic, it being under-estimated more frequently than otherwise. Even more careful consideration must be given to tendencies affecting the cost of helper engine service itself. The experience of the past year has illustrated the fact that the demands of train service employees both for higher wages and for more costly working conditions are increasing continually. It is, therefore, safe to assume that the expense of this service, at least insofar as the wages of employees are concerned, will increase more rapidly than the business. These conditions constitute a strong argument for the construction of low grade lines even where the first cost is considerably greater than the capitalized cost of helper service under present conditions. Such construction eliminates the uncertainties which surround the future cost of helper service.

The Increasing Cost of Helper Service

How many mechanical engineers and designers consider the electric lighting equipment when laying out the trucks, brake rigging and underframe of a new passenger car? Very few; yet the axle generator with its accessories certainly plays an important part in the successful operation of the car in service. The most unreliable part of the axle generator equipment is the belt; this is not the fault of the belt itself, but of the makeshift installation because of no provision being made for it and its pulleys when designing the car. The best results can be obtained by using a large axle pulley about 20 in. in diameter with a wide face, about 10 in. This pulley, particularly with body mounted machines, should be located at the center of the axle to reduce belt distortion when on curves. So much for the ideal. In practice it is usually impossible for the electrical department to specify an axle pulley that would give the longest belt life and fewest light failures; it is simply a case of making the best of the situation by specifying a pulley with standard bore and width and with the largest diameter possible. Under these conditions axle pulleys, from 14½ in. to 21 in. in diameter and from 7 in. to 10 in. face have had to be used. The diameter most used is the 17 in., which is 3 in. less than it should be. Both the Master Car Builders' Association and the Association of Railway Electrical Engineers have adopted standard generator pulleys for the two types of axle machines, but because of the common practice of paying no attention to the axle equipment when designing the car, it has been impractical to adopt a standard diameter for the axle pulley. More co-operation between the mechanical and electrical departments will not only make such a standard possible, but will result in better belt performance, fewer light failures and will do away with any friction between the two departments growing out of the lack of such co-operation. It will be to the best interests of the railroad freely to consult the electrical engineer on the design of new cars and to incorporate as many of his suggestions having to do with adapting the trucks, brake rigging, etc., to the electrical equipment as are practicable.

Providing for Electrical Equipment in Car Design

THE EMPLOYMENT OF WOMEN

THE steady increase in the employment of women in all kinds of industrial and commercial activities throughout the civilized world in the course of economic evolution has been taken so much as a matter of course by the public in recent years that the sudden introduction of women into lines of work in which they have not previously been engaged has not excited any particular concern, and it has been generally supposed that the change can be made with but small administrative effort. Experience gained thus far has shown, however, that obstacles will be encountered, which, while they may be trivial in most cases, must be disposed of correctly before the step can be taken with success.

The question of compensation is important. While women are commonly paid less than men in classes of work in which their employment has been thoroughly established, it has been the recent experience in Canada that the substitution of women for men as a war measure is less liable to upset labor conditions if women are paid the same scale as the men. The employment of women also has a social aspect which must receive careful study. When engaged as machine operators or day laborers women are thrown into coarser surroundings and into contact with men who are not accustomed to the association of women in the status of fellow employees and instances have been reported where it has been necessary to discipline a few of the men because of a failure to show proper respect.

One feature which may be overlooked is the provision which must be made for toilet facilities before women can be put to work. As an indication of what this means it may be mentioned that estimates made on one road for accommodations for women to be employed in car and locomotive shops demonstrated that expenditures in excess of \$10,000 would be required. It is not alone a question of the amount of money involved but the character of the accommodations necessary deserves careful consideration. Rest rooms must be provided and in general the facilities must be of a higher grade than the crude accommodations which in many cases have been considered adequate for men, for in the words of one railroad president "the standards of womanhood in this country must not be lowered."

This situation presents new problems and therefore should receive careful study before expenditures are made.

TRANSCONTINENTAL RATES

THE Interstate Commerce Commission has again ordered a readjustment of transcontinental freight rates as to the relation between rates to the Pacific Coast terminals and those to the intermediate intermountain territory, but instead of attempting to deal permanently with the situation has based its decision on conditions admittedly temporary, whose change will require another adjustment.

The commission finds that, because of the war, existing water competition with the rail lines for traffic between the Atlantic seaboard and Pacific Coast terminals is a negligible factor and that rates to the Pacific Coast from the east lower than the rates on like traffic to intermediate points are, therefore, not justified under existing circumstances. We thus enter upon another chapter in the complicated history of the controversy between terminal and intermountain communities which has raged for some 25 years. As the cessation of traffic through the Panama Canal because the ships are being used elsewhere on account of the war is the reason for the new order, the chances are that it will continue for at least as long as any of the various previous adjustments, but it seems rather regrettable that the opportunity has been missed to settle on a policy for transcontinental rates based on more permanent conditions.

In a former report dealing with the transcontinental rate situation, although the carriers urged that the prospective opening of the Panama canal and its effect on the rail

rates be taken into consideration, the commission declined to do so, and it became necessary for it to do much of its work over again after the canal was opened. In this case the carriers asked the commission not to confine its consideration to the temporary circumstances, but to look to the future and recognize the permanency of the condition created by the opening of the canal route. The commission does not fail to recognize some force in the argument, but it deals with the situation that exists for the time being.

The carriers will probably profit, at a time when they can make good use of the money, by the temporary advancing of rates to the Pacific Coast required by the order to realine them to accord with the provisions of the long and short haul rule so that they will not be less than the rates on like traffic to intermediate points. In spite of this fact, however, the carriers vigorously opposed such an order at the time of the oral argument on the tentative report, because of the disturbance it would create in the long established relations between the terminal and intermediate points during the meantime.

MAINTENANCE OF WAY CONVENTIONS

AS the time approaches for the fall conventions of three of the maintenance of way associations, there is much discussion of the advisability of holding the meetings this year. Some maintain that, because members will have difficulty in getting away from their work long enough to attend, the attendance will be greatly reduced, and that, therefore, the meetings should not be held. Others contend that because of the new and serious problems which are confronting the members of these associations this year, there is more than the usual value to be derived from the meetings with their opportunities for the exchange of information.

The Roadmasters' Association convention is scheduled to be held in Chicago, beginning September 18. At a meeting of the executive committee of that organization three weeks ago, the opinion prevailed that the convention should be held at the time and place originally agreed on. It was decided to reduce the time from the customary four days to three days, to eliminate practically all entertainment for the members and to revise the program radically to make it of the greatest practical benefit to the members at the present time. Addresses of welcome and other time-consuming formalities have been eliminated. Several reports, which are not of immediate timely interest are to be replaced with papers and reports on various phases of the labor and material situations as they now exist. The executive committee of the Bridge and Building Association held a meeting last week at which similar action was taken regarding the convention of that society, scheduled to be held in St. Paul the third week in October. The place of meeting was changed to Chicago to make it more central for the members and to avoid placing a transportation burden on any one or two railways. The Maintenance of Way Master Painters' Association has also decided to proceed with its convention at Cleveland the third week in October.

There has been a strong tendency to call off the conventions of the various railway associations since the United States entered the war. In those fields in which few, if any, special problems have arisen this action may be advisable, but in those branches of railway service such as the maintenance of way department in which new and highly important problems have been presented which demand solution, there has never been a greater need for association work with its possibilities for united discussion and the exchange of ideas. Difficult as it may be for a man to leave his work under existing conditions, the very fact that he is so handicapped makes it all the more necessary that he avail himself of the opportunities to learn of better methods whereby he may conserve the forces and materials he has. Many of the problems which are now giving so much trouble

have arisen so recently that there has been no chance for other than individual study. If, therefore, these associations ever had an opportunity to be of real service to their members, this is the time.

By revising the programs to make them more applicable to the present problems, these associations are endeavoring to rise to the occasion. Instead of a smaller attendance at these conventions this year, it should be larger because of the greater demand for the information which will be brought out. Railway officers can do well to encourage their men to attend these meetings, for if a man goes to them with serious intentions, the results will be reflected in his work.

FREIGHT CAR EFFICIENCY

SOME roads have been inclined to complain whenever their percentage of equipment on line has been less than 100 and to point out that they could have served their local shippers much better if their cars had not been scattered on other roads. Many of such complaints entirely overlook the fact that about the only time an originating road ever had 100 per cent of its equipment was at a time of depression when there was a general car surplus. Many roads that have cited figures to show that they have been able to supply only a certain percentage of the requirements of their shippers have actually loaded more cars and done more business than ever before.

To illustrate the fact that the percentage of cars on line is of less importance in indicating the condition of a railroad than has sometimes been attached to it, some interesting figures have been compiled for five typical roads, with a view of determining relative service to the public and of ascertaining what per cent of car ownership produced best operating results as gaged by average miles per car per day. For this purpose figures for two leading railroads in the east, classified as delivering lines, and three leading central western lines, classed as originating or producing lines, were taken, showing the percentage of cars on line and the average car movement per day for a two-year period from April, 1915, to March, 1917, inclusive. From these were selected the average for the six months when the greatest car mileage per day was made for comparison with the six months when the poorest mileage showing was made. The results were as follows:

DELIVERING ROADS			
	Per Cent Cars on Line	Average Miles Per Car Per Day	Increase in Total Car Miles
No. 1	107.5	18.3	28.0%
	133.7	11.5	...
No. 2	135.7	19.7	5.0
	153.4	16.6	...
ORIGINATING ROADS			
No. 3	76.7	38.5	13.4
	96.4	27.0	...
No. 4	94.6	28.4	9.0
	102.4	24.0	...
No. 5	60.4	37.1	3.4 Dec.
	82.4	28.4	...

In each case the greater mileage per car per day was made when the percentage of cars on line was less.

These statistics also give an indication of the often-repeated statement that car shortages are by no means necessarily caused by a lack of cars so much as by a shortage of other facilities for handling freight promptly, including not only railroad facilities but those of shippers and consignees for loading and unloading. The ability of a delivering road to serve the public depends not only on the facilities which it has provided but also on the ability of consignees to promptly dispose of the freight delivered to them, so that cars may be released and that room may be made for others. The figures cited for the two eastern roads show that they were able to make a fair average mileage per day with from 107 to 135 per cent of cars on their lines but that when this percentage increased the movement was slowed up. It is a well-known fact that much of the congestion during the past few months has been due to the inability of eastern consignees, especially at the seaports, to handle the freight de-

livered to them, with the result that eastern lines first became congested and the congestion backed up until its effects were felt even west of the Twin Cities.

THE B. OF R. T. STRIKE IN CHICAGO

THE strike in the Chicago terminals last week of switchmen belonging to the Brotherhood of Railroad Trainmen will harm not only that organization but the entire cause of organized labor. Probably it was condemned by the members of labor organizations generally and especially by a majority of the members of the railway labor brotherhoods. It was unwise from the standpoint of organized labor because of the gross disregard of the public welfare which it showed and because those who called it so greatly over-estimated the strength of the strikers that it was practically lost by them when officers of the other three large labor brotherhoods intervened and suggested a plan of settlement which, with some important modifications, finally was accepted by the roads. While, however, the strike doubtless was condemned by most members of the railway brotherhoods, it was entirely consistent with the action taken by the heads of all the four large brotherhoods in calling a strike on all the railways last spring when the Adamson law case was pending in the Supreme Court.

The representatives of the Brotherhood of Railroad Trainmen in Chicago simply seized upon a time when, as they supposed, the railways were in a vulnerable position, to wring from the roads concessions which could not be secured at any other time. All the railways of the country are obliged to exert themselves to the utmost to handle the vast traffic now moving. A large part of this traffic passes through the Chicago terminals, and at present includes much military traffic for the government. The brotherhood leaders in Chicago apparently believed that the railways would concede almost anything to avoid an interruption of traffic through that city and therefore that if a strike were called it would be quickly won. The railways charged that the strikers, in effect, demanded the closed shop on roads with which the Brotherhood of Railroad Trainmen had contracts, and also tried to establish the principle that members of their organization must be promoted to assistant yardmasters and yardmasters in preference to other persons. The spokesmen for the Brotherhood of Railroad Trainmen deny this and say that the demands they made were reasonable; that they were made only to protect members of the organization against discrimination, and could have been granted by the railways without doing any harm.

The demands speak for themselves. One of them was that "in the employment of yardmen the B. of R. T. men shall be given preference." This would not absolutely restrict railways having contracts with the B. of R. T. to the employment of members of this organization, but it is evident that under it they could not employ men not belonging to this organization without constant friction and danger of strikes. The Managers' Conference Committee offered a rule providing that there should be no discrimination against members of the Brotherhood of Railroad Trainmen.

Another rule for which the B. of R. T. asked was that "yardmen discharged can only be reinstated by mutual agreement between officers of the company and the properly authorized committee representing them." Since on a road having a contract with the Brotherhood of Railroad Trainmen the committee of this organization would be the only one representing the men, it is clear that a man who did not belong to this organization would have much difficulty if he were discharged in ever getting back into the service. Under the operation of these two rules it would not be long until on any road having contracts with the B. of R. T. there would be no yardmen in the service not belonging to this organization. There may be a distinction, but there is no substantial difference between such an arrangement and the closed shop.

Finally, it was demanded that "in the employment of yardmasters and assistant yardmasters senior qualified yardmen shall be given preference." This rule would support the other two rules in making effective the closed shop; and it would undermine discipline and efficiency by setting up previous employment and seniority instead of special fitness as the qualifications for official positions. Why should preference be given to yardmen rather than to yard clerks or trainmen, if the latter are considered as fit or more fit than the yardmen?

It was to force the acceptance of these novel and unreasonable rules that the representatives of the Brotherhood of Railroad Trainmen in Chicago on Friday morning ordered a strike to begin at six o'clock on Saturday morning. To call a strike to secure the adoption of such rules when the Managers' Conference Committee already had suggested mediation by federal authorities would have been bad enough in any circumstances. To call it when the country was at war and needed the service of every railroad yard, track, locomotive, car and employee showed a seeming want of regard for the public welfare and a lack of patriotism that are difficult to understand.

The responsibility for the strike does not rest entirely upon the officers of the Brotherhood of Railroad Trainmen. It rests also upon Congress. Congress was warned last September that developments of this kind were likely to occur unless a law to prevent them was passed. Congress was shown beyond question last spring that this warning was well founded, when under still more serious conditions a strike was ordered by the heads of all the four railway brotherhoods. Congress, however, refused to act to protect the public and in consequence we have now actually seen a strike put into effect in Chicago by representatives of one of the brotherhoods. Is any more conclusive demonstration needed of the proposition that this country will not be safe from serious railway strikes during the war unless legislation is passed to prevent them?

STATE REGULATION INTERFERES WITH RAILROAD EFFICIENCY

A FEW days after war was declared the chief executives of the railways met at Washington and formed an organization for the purpose of operating all their facilities in such a way as to help the nation to the utmost in the struggle which it had entered. Those who have during recent years followed closely developments in the field of railway regulation anticipated that some of the most serious obstacles encountered by railway managements in accomplishing this purpose would be interposed by state railway commissions.

Unfortunately, the regulating commissions of some states are justifying the uncomplimentary apprehensions expressed regarding them. E. P. Ripley, president of the Atchison, Topeka & Santa Fe, has written a letter to the Chicago Tribune in which he calls attention to the situation with respect to minimum carload weights, and the attitude which has been assumed regarding it by some state commissions, and especially that of Kansas. The Public Utilities Commission of Kansas has refused the application of the Kansas lines for leave to advance the minimum carload of flour and other grain products from 24,000 to 40,000 lb. "In the western rate advance case in 1915," as Mr. Ripley says, "the Interstate Commerce Commission permitted an advance of this minimum to 40,000 lb. on interstate shipments throughout the states of Illinois, Wisconsin, Minnesota, North Dakota, South Dakota, Colorado, Nebraska, Iowa, Kansas, Missouri, Arkansas, Louisiana, Texas, Oklahoma, and New Mexico. But in the states the carriers have not been able to secure like advances; and this is called to your attention as an illustration of the impossibility in practice of getting anywhere with transportation in this country as long as states are thus able to block the way. Even the load of 40,000 lb.,

which the commission in the western advance case authorized the carriers to require for interstate movement, is really only half a load, for it was shown during the trial of that case that flour and other grain products for export load from 70,000 to 85,000 lb. In the interest of efficiency the carriers have increased the power of their locomotives and the carrying capacity of their cars, but their efforts have been balked by the toadying of politicians on state commissions to the selfishness of shippers, who insist upon the privilege, at the expense of the commercial and industrial interests of the United States, of buying only a third of a load of flour at a time."

Mr. Ripley contrasts the minimum weight fixed by the Interstate Commerce Commission with those which have thus far been kept in effect in a number of western states. The figures for ten of these states are as follows:

	Pounds		Pounds
Illinois	24,000	Missouri (flour)	24,000
Minnesota	30,000	Missouri (other products)	30,000
South Dakota	30,000	Arkansas	24,000
Nebraska	24,000	Oklahoma	24,000
Iowa	24,000	New Mexico	30,000
Kansas	24,000		

Continuing, Mr. Ripley says: "When it is considered that the average equipment of today will carry about 60,000 and most of it 80,000 lb. and over, the minimum of 24,000 lb. which the state of Kansas refuses to advance is nothing less than an outrage upon investors, a gross discrimination against shippers furnishing large loads, and in this time of war such an 'aid and comfort' to the enemy as to be really treasonable.

"Wisconsin allowed an advance to 40,000 lb. the other day, and recently Minnesota granted a miserly advance from 26,000 to 30,000. Kansas denies any relief. And there you have the conflict and confusion which beset us everywhere."

As Mr. Ripley says, applications for increases in carload minimums are pending in Illinois, Iowa, Nebraska and many other states, but while the need for action is acute and will become much more so within a few months, most of the state commissions seem indisposed to do anything. Their members apparently are thinking more about how some of their influential constituents may feel concerning an advance in minimum weights than they are about the things that need to be done to enable the United States and its allies to win the war.

Mr. Ripley illustrates the great increases in railroad efficiency which might be secured if only the railroads were allowed to adopt the measures necessary adequately to increase carloads. He says: "In the last year the Santa Fe handled 56,512 carloads of flour and other grain products, which loaded on an average about 39,000 lb., the larger load of the interstate movement having been pulled down in the average by the smaller loads in the states. Had this average load of less than 39,000 lb. been increased by 11,000 lb. and made merely a fair load of 50,000 lb., the Santa Fe would thereby have saved for other transportation uses and for other shippers about one car out of four—that is, in moving 56,512 shipments of grain products it employed about 14,000 cars more than were necessary for that transportation. What a stupendous waste for only one carrier on only one commodity! What I say about grain products is true in varying degrees of many other commodities moving in large quantities."

A statement of facts such as that made by Mr. Ripley is the severest indictment that can be drawn against our dual system of regulation of railways. There seems to be little ground for hoping that state regulating authorities will ever become intelligent and public-spirited enough to put the welfare of the country as a whole above the supposed interests of the people of their own states. Apparently the only remedy for the unsatisfactory conditions to which regulation of the railways by both the state and federal authorities gives rise is the abolition of state regulation.

Letters to the Editor

THE NEW IMPACT FORMULA

CHICAGO, ILL.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

The American Railway Engineering Association adopted a new impact formula for the design of railway bridges at its last annual convention. This formula is

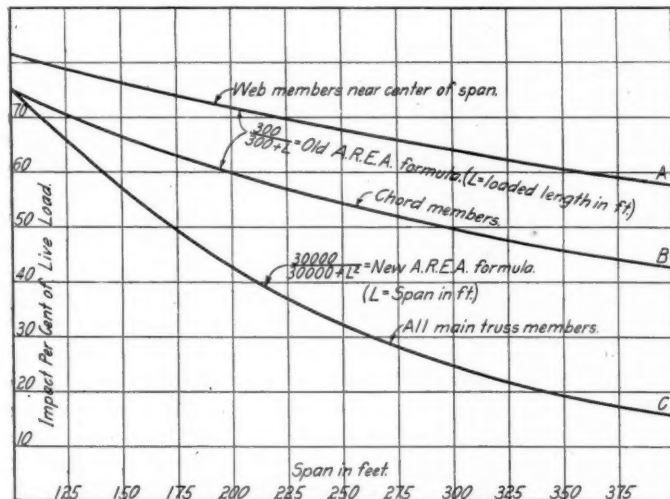
$$I = \frac{30000}{30000 + L^2}$$

In which I = the fraction of the live load stress to be added to provide for impact and L = length of the span in feet. The old impact formula, which is a part of the specifications for bridge design adopted by the Association in 1912, and which has been widely used is

$$I = \frac{300}{300 + L}$$

in which I = the fraction of the live load stress to be added to provide for impact, and L = length of loaded track on the span in feet. A comparison of the per cent of live load allowed for impact by these formulas is shown in the diagram for spans from 100 to 400 ft.

An essential difference in these formulas is found in the meaning of L . In the new formula L is the length of span for all main truss members except those whose sole func-



Graphical Comparison of the Formulae.

tion is to support floor beams, while in the old formula L equals the length of loaded track required to produce the maximum live load stress in the various members. Thus, for end posts and chords L is practically the span length in both formulas, but for web members, the value of L in the old formula varies.

The impact produced by rolling loads on railway bridges is not susceptible of vigorous mathematical analysis, and the results of experiments must therefore furnish the principal basis for an impact formula. However, there are certain theoretical considerations which should be satisfied and which are satisfied in the new formula, although its constants are the result of experiments. Theoretically L should be the total span length for all main truss members.

The impact on the trusses does not arise from the jarring effect of the rolling loads but from that part of the deflection of the entire truss caused, in most part, by the rhythmical application of the centrifugal force of the overbalance in locomotive drivers which sets the bridge to swinging in a

vertical direction. If the period of vibration of the entire bridge and its load is the same as the time required for one complete revolution of the drivers, the amplitude of swing of the bridge will reach a maximum, because each application of the centrifugal force, both upward and downward, then tends to increase the total deflection and this condition gives maximum impact on the trusses. Since the impact, causing deflection, produces maximum stress in all the members when the deflection is greatest, it follows that the impact is a function of the span length and L should therefore be used as the entire length of the span.

It is to be hoped and expected that this new formula will meet with the approval of engineers generally and that it will be used to an extent justified by its adoption by the American Railway Engineering Association and by the great number of experiments and the large amount of work devoted to its development. It is easy of application, since the same factor applies to all main truss members; and, moreover, it results in a slight economy in the weight of steel in the bridge. The reduction of weights resulting from its use instead of the old formula in a span of 175 ft. designed for Cooper's E-50 loading is about 10 per cent in the trusses and less than 6 per cent for the entire bridge. In longer spans the weight of steel required to provide for dead load increases faster than that required for live load, so that the percentage of economy tends for this reason to decrease as the span length increases. However, by reference to the diagram it is seen that the impact as given by the new formula decreases faster as the span increases than that given by the old, so that the saving in weight tends to increase for that reason. For spans of from about 150 to 400 ft. the economy from using the new formula for the trusses instead of the old will amount to approximately 5 per cent of the entire weight of the bridge.

The experiments upon which this new formula is based and the work of its development was performed by the subcommittee on Impact and Secondary Stresses of the Committee on Iron and Steel Structures of the American Railway Engineering Association of which Prof. F. E. Turneure is chairman, and to him and to Prof. C. L. Crandall the credit is due in great part.

A. C. IRWIN,

Engineering Department, Chicago, Milwaukee & St. Paul.

TRANSVERSE FISSURES

ST. MARYS, Pa.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

The transverse fissure problem as presented by James E. Howard in the report of the Interstate Commerce Commission, an abstract of which is published in *The Railway Age Gazette* of March 23, and the comments made on the article in the issue of May 25 by John D. Isaacs are very interesting. The examination of rail failures is not carried to a conclusion in many cases. One seldom hears of transverse fissures or broken rails being produced on bridges or perfect foundations where the ties are close together and in perfect surface. The larger percentage of examinations of transverse fissures are made after the rails have broken, causing more or less damage to the road bed from which little, if anything, can be learned after the track bed had been torn up by derailed cars or locomotives.

Much time and money has been expended in trying to solve this problem without taking into consideration the outside influences that bear on the problem; such as flat wheels (of which there are thousands running, some for a very short time and others for days before they are removed, in which time they may do considerable damage when the condition of the track and the flat spot form the proper combination) alternating soft and rigid spots in the track, ties spaced too far apart (irregular spacing) and the cold rolling process that takes place.

There are many bad track conditions of apparently slight significance to the track walker and which he would have

difficulty in finding that can contribute to the transverse fissure condition. It is true that defective material plays an important part in some cases, but not all, or a good deal. Therefore, the logical conclusion is that Mr. Howard's report would be borne out if some of the actual conditions of wheels and track were made a part of the analysis as well as the rail. While it would cost considerable money to make tests under such combined conditions it would probably bring out some valuable data as to the transverse fissure.

E. F. GIVIN,

Mechanical Engineer, Pittsburgh, Shawmut & Northern.

THE VALUE OF RAILWAY CLUB ADVERTISING

SAN FRANCISCO, Cal.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

As one who has for many years been a constant reader of the *Railway Age Gazette*, a contributor of many articles to its pages, and an ardent admirer of its policies, I feel that I should be privileged to criticize your editorial of July 13, entitled, "Western Railway Club Drops Advertising"; and incidentally, as secretary of the Pacific Railway Club, to dispute some of its statements.

When it was decided to establish a forum for the presentation and discussion of subjects relating to construction, operation and maintenance, the executives of the Pacific Coast roads were a unit in expressing the belief that the most good could be accomplished by taking as models the highest types of professional societies: bar associations and medical societies. These societies admit to membership only persons who are actually practicing their professions, and I doubt if there can be found anywhere in this country a bar association that carries law-book salesmen on its membership roll, or a medical society whose roster boasts the presence of patent-medicine manufacturers. The Pacific Railway Club limits its membership to (a) persons actively engaged in railroad service, (b) in the service of a railroad regulatory body and who has had not less than three years' active railroad experience, (c) faculty members of colleges of recognized standing.

You will note that no place has been provided for supply salesmen or manufacturers. But the club membership does include the professors of railroad engineering and economics at our two universities, and we maintain a junior membership for college students in railroading and young men in railroad service who desire the use of the club as an educational adjunct. Thus we are endeavoring to make of our club something more than a mere gathering place for railroad men and supply salesmen.

The members of the Pacific Railway Club pay the highest dues paid by any railway club membership in the United States and Canada. The reason for this is that we have fewer men to draw our membership from and cost of operation is higher in the far West than elsewhere. If the club had to depend upon the dues paid by members for its support it could not afford to continue the publication of its official proceedings. That the contents of these proceedings have a distinct value is proved by the reprinting of some of the papers contained in them in no less an educational journal than the *Railway Age Gazette* itself.

If I may make the comparison: just as the *Railway Age Gazette* could not exist alone on the receipts from subscriptions and continue to provide the railroad world with the high-class service it is now giving, so the Pacific Railway Club could not do its share without advertising support.

As to the advertising value of our "Proceedings." We publish monthly a minimum of five hundred copies, each one of which goes into the hands of a railroad man who either specifies or purchases railway material, or who will at some future time specify railway material. That means 100 per cent circulation efficiency. For a half-page advertisement we charge less than postage on a circular letter;

one and a half cents per unit of circulation. For a full page advertisement, less than the cost of postage and printing of a circular letter; three cents per unit of circulation. The three advertising agencies who place most of your clients' advertising have approved our "Proceedings" as an advertising medium.

In view of the above, I think that you will agree with me that the Pacific Railway Club is asking nothing of the supply people for which it does not give full return. Medical societies carry the advertisements of medicines and appliances in their journals; bar associations advertise law books in theirs; why should not railway clubs take advantage of the value of their journals as advertising mediums and make the most of them?

If I did not know the high standards of your paper and the high type of journalists who operate it, I should be inclined to think that your management objected to the opposition of the club journals to your magazines as advertising mediums. I hope that you will give this communication the same publicity that you gave your editorial; this, in justice to such clubs as the Pacific Railway Club.

WILLIAM S. WOLLNER,
Secretary Pacific Railway Club.

MAN FORCE, CAPITAL AND TRANSPORTATION EFFICIENCY

EAST PITTSBURGH, Pa.

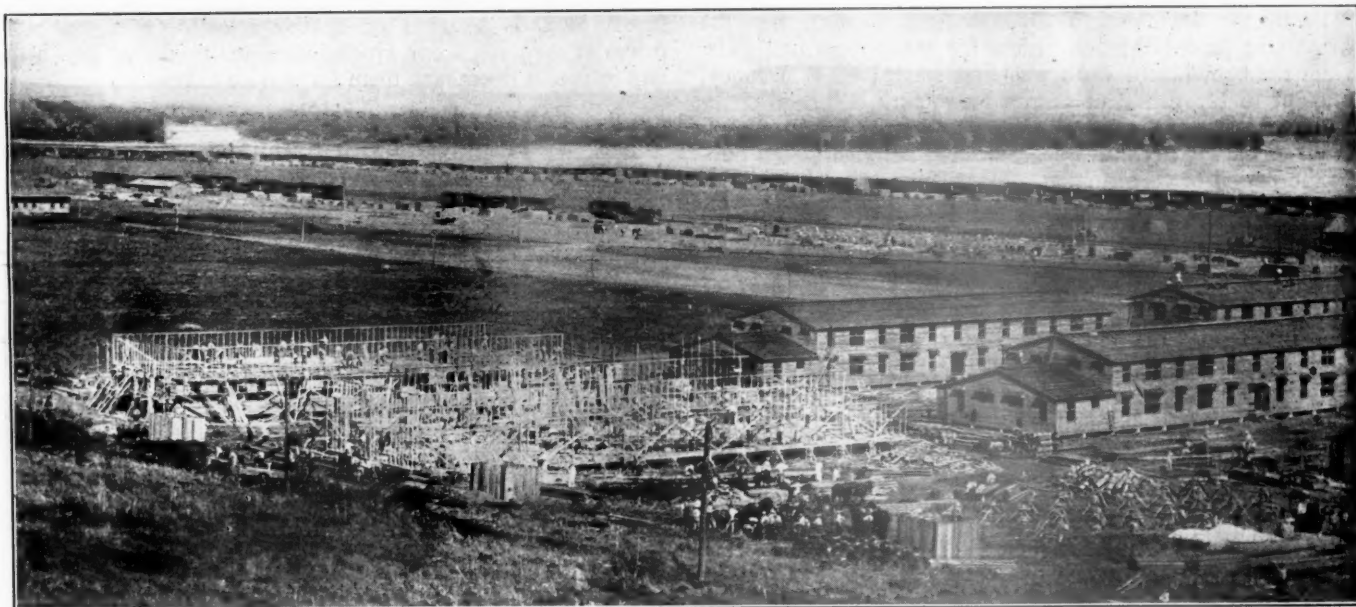
TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

I have read, with much interest, your analysis and conclusions in the "The Decision in the Fifteen Per Cent Rate Case," published in your issue of July 6.

I would like to suggest that in addition to the matters you cover, showing a tendency toward a slowing down in development, there is another situation, also which the railroad managements cannot control, which may cause some tendency toward slowing down transportation accomplishment. Every manager senses always the delicate poise in which his organization is held, as between initiative and active, efficient endeavor on the one hand and a passive, just making good sort of an effort of the whole organization under him on the other. We are all very proud of the accomplishments of our railroad organizations. A new condition has been forced upon the railroads, however, which cannot do other than, at least in some degree, slow up their past enviable quality in this thing. The war is draining from the railroads large numbers of the "picked," long experienced, most highly efficient, employees. Their places will be filled by new employees. To a great extent a "shift" will be made, and vacancies filled by women. The most serious situation in this, however, is the fact that on account of war draining the country of its best, virile, young manhood, the railroads cannot recruit the same quality of employee as in former times.

The effects of this transition have not yet been felt. The question arises whether under the stressed conditions it will be possible for the managements to keep up the past quality of their organizations. Is it not fair to assume that this may easily affect organization development adversely to such a degree that the resulting difference between the virile, active, strong organization, and the weaker organization, may readily shift results to offset the small degree of net rate advance permitted? To me, the most obvious and the only remaining means of keeping the net organization results high requires placing a better tool, or more of them, in the poorer employees' hands. It would seem, also, that this is one of the legitimate situations that might likewise have been considered by the commission in its decision, but which does not seem to have been done. As man power efficiency comes down, capital requirement must go up, as the substitution to maintain at par the third value—transportation.

Q. M. HERSHEY.



Cantonment at Fort Riley, Kan., in Course of Construction

Railways Active in the Nation's Service

Moving Government Supplies and Forces, Working on
Cantonments, War Posters, the Draft. Other Matters

WASHINGTON, D. C., July 31, 1917.

PLANs for the solution of one of the most important transportation problems placed before the railroads by the war have just been adopted by the Railroads' War Board after a series of conferences with the authorized officers of the Army, Navy and the United States Shipping Board. The problem concerns the supply and expedited handling of the thousands of cars required by the government to transport lumber and other supplies to the shipbuilding yards, cantonments and other mobilization points, which movement has already assumed considerable proportions. During the next few months it is estimated that 100,000 cars will be needed for government purposes. The plans agreed upon are described in a bulletin issued by the Railroads' War Board to all railroads.

CAR SUPPLY AND MOVEMENT FOR GOVERNMENT SHIPMENTS

Arrangements have been completed under which advance notice will be given the Commission on Car Service whenever orders exceeding 10 carloads or 250 tons are placed for material or supplies and a form has been prepared for this use. Arrangements have also been perfected under which the authorized officers of the departments and the shipping board will issue car orders on another form to the railroads on which the supplies are to be shipped, instructing them to provide the number of cars ordered within the time specified and at the shipping points designated. These forms are to be furnished only where the ordinary means of securing cars have failed. They will be filed by shippers with the railroad agent at originating point and upon their presentation cars will be promptly furnished in accordance therewith. A record of cars furnished will be maintained on the back thereof. In case of inability to provide equipment promptly the railroad with which they are filed will communicate with the Commission on Car Service, giving date and number of order and by whom consigned.

To prevent shippers from utilizing for their own purposes cars needed for the government service, railroads are instructed that cars furnished on one of these orders must not be used except for the loading specified in the order. The

forms will be supplied to the departments interested and the railroads are directed to instruct all concerned as to their use. To assist further in keeping cars bearing government supplies moving without delay, a form of envelope in which the waybill is to be carried, similar to that shown in the illustration, is to be furnished by authorized officers of the departments and the Shipping Board to persons or firms making shipments of material for the use of the Army, Navy or the Shipping Board. These envelopes will show the following headings in large type: "United States Government," "United States Army Supplies," "United States Navy," "United States Shipping Board." Cars accompanied by these envelopes must be given continuous movement and must not be delayed.

In addition, railroads have been directed to instruct their agents at all points to stamp or write in a permanent place on waybills covering less than carload shipments consigned to officers or agents of the Army or Navy or of the Shipping Board the words "United States freight. Expedite." The stamp for this purpose should preferably be used at all stations of any size.

Railroads to which the car order or the waybill envelope is presented are to furnish cars and handle loaded cars in accordance with the instructions, regardless of the name of the consignee, inasmuch as the forms are only furnished by responsible officers of the Army, Navy and of the Shipping Board, who will undertake to prevent any abuse. If any doubt exists with reference to the propriety of the use of the waybill envelopes, the instructions state that the movement should be accomplished and the matter then taken up for investigation. The bulletin also states that if departments of the government or individual railroads desire to place cards of their own form upon cars to assist in securing continuous movement there is no objection to such practice.

RUSHING CANTONMENT MATERIALS

Over 12,000 carloads of lumber and other building supplies have been delivered by the railroads to the 16 cantonments that are to house the first division of men called to the

colors by the draft within 30 days from the date that the government placed the first orders for cantonment materials. When the cantonment work was first started C. E. Denney, assistant to the president of the New York, Chicago & St. Louis, was assigned as general agent in the office of Col. Littell of the quartermaster's department at Washington during the period of construction. Mr. Denney's work is to co-operate with the quartermaster's department to keep in touch with all phases of the construction work, track building, etc., and furnish advance information to the Commission on Car Service concerning the government's orders and the number of cars required to fill them. From his reports and those of the agents at the cantonments the Commission on Car Service is able to keep informed when and where cars will be needed and to make provision for furnishing them. To insure the prompt delivery of all cantonment supplies, railroads are giving preference to government shipments and the Railroad War Board has assigned an experienced railroad man as a general agent at each cantonment to work in co-operation with the constructing quartermaster. These agents make reports regularly concerning the number of carloads of material received, the number of cars unloaded, etc.

Additional trains, loaded to capacity with lumber, brick, piping, wire, poles, water mains and all the other materials needed to construct cities capable of accommodating 40,000 inhabitants, are arriving daily. These trains are swiftly unloaded and meanwhile other cars are placed at the supply points for new loads.

An indication of the speed with which the materials are being moved, and also the teamwork between the railroads, and the construction forces, is contained in a report from the cantonment at Louisville, Ky. The report states that one of the administration buildings there was built from lumber cut in a Mississippi pine forest the week before. The trees were felled on Saturday, kiln dried on Sunday, loaded on freight cars Monday and delivered at the Louisville site on Wednesday morning. An army of energetic carpenters speedily converted them into an administration building, completing the transformation from forest to government structure just one week from the day they had been felled.

Altogether 1083 carloads of lumber and 149 carloads of other supplies have been delivered at Louisville during the past three weeks, a total of 1232. At Petersburg, Va., 965 carloads of lumber and 431 carloads of other materials have been delivered, a total of 1396, at Ayer, Mass., 807 carloads of lumber, 532 of other materials, a total of 1339; at Fort Sam Houston 934 carloads of lumber, 612 of other materials, a total of 1546.

In order to reach many of the cantonment sites, the railroads have had to build branch lines from the nearest main line, at their own expense. It has also been found necessary to lay anywhere from 4 to 6 miles of additional trackage on each site to supply facilities for the local movement of materials necessary to the rapid progress of construction work.

MOVEMENT OF MILITARY FORCES

The railroads have been handling large numbers of troops and large quantities of supplies to the seaports for transportation to Europe for General Pershing's expeditionary forces and it is understood the various movements have been handled to the entire satisfaction of the War Department authorities. Details regarding these movements cannot, however, be published under the rules promulgated by the Committee on Public Information for the volunteer censorship under which newspapers and other publications have been operated. New regulations have been issued this week containing the general request that there shall be no published mention of the arrival of American troops or supplies at European ports nor information regarding train or boat movements of troops nor information tending directly or indirectly to disclose the number or identity of troops in the expeditionary forces. The rules also cover information of the movement of military

forces towards seaports or of the assembling of military forces at seaports, from which inferences might be drawn of any intention to embark them for service abroad.

RAILWAY EMPLOYEES SUBJECT TO DRAFT

The Railroads' War Board recently issued a circular to the railroads quoting a letter received from the Provost Marshal General, advising that there can be no exemption from the draft by classes, but that each individual case must be

UNITED STATES GOVERNMENT

TO BE GIVEN CONTINUOUS MOVEMENT AND NOT TO BE DELAYED

- a. Initial Car Number
 b. Point of Shipment Date
 c. Contents
 d. Consignor
 e. Consignee
 f. Destination
 g. Route

(Give route and junction points through to destination.)

INSTRUCTIONS

TO CONSIGNOR:

1. Fill out blank spaces a to g inclusive if practicable. Otherwise to be filled out by railroad Employee.
2. Deliver to railway agent, or representative, when bill-of-lading is signed.

TO RAILWAY EMPLOYEES:

3. The billing on which car moves, whether regular bill or card bill, must be placed in this envelope at originating point.
4. Envelope containing billing must accompany car to destination in custody of proper employee.
5. If car is set out for repairs short of destination, conductor or yardmaster must notify superintendent, giving contents, destination and consignee. If delayed *twenty-four hours or more*, superintendent must notify consignee by wire through proper channel.
6. If this freight be transferred en route, notation of such transfer must be made on card or regular bill enclosed. The car number and initial into which transfer is made must also be noted in spaces below:

Transferred To
Initial Number

At Date

Signed
(Title)

7. Railway agent at destination after removing contents will promptly deliver this envelope to the consignee.

Waybill Envelope for Government Shipments

taken up and determined upon its own merits by the federal exemption boards in accordance with the regulations promulgated by the President. The letter states that it is the policy of the administration to so execute the selective service act as not to unnecessarily cripple any industry.

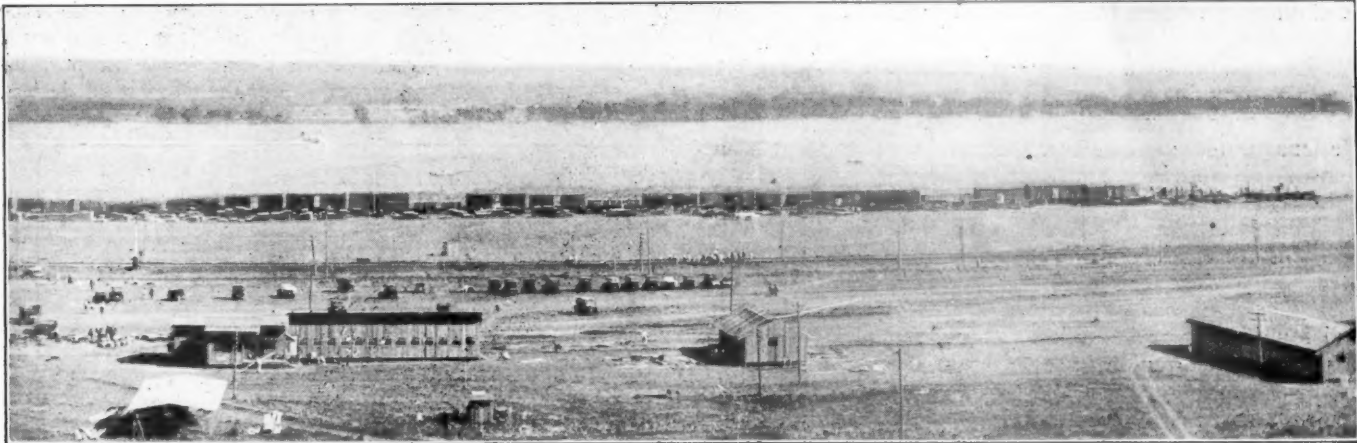
To the railroads the war board suggested that a careful census be taken of the men on the various roads subject to draft, classifying them as to unmarried and married and with reference to dependents, also showing those who may be relieved from this service without embarrassment since they can be replaced either by men experienced in railway

operations or by women. As to those who it is felt should be relieved from military duty, it is suggested that lists should be prepared setting out the facts in detail for each district, with affidavits detailing the facts to be subscribed to by the immediate superior officers and certified to by the superintendent or head of the department, these lists and

the war with Germany. The Nation is counting on you."

Number 3 shows Uncle Sam holding out a copy of bulletin No. 12 issued by the Railroads' War Board outlining methods of increasing the efficiency of the railroads. Below the picture is the following:

"Have you read bulletin No. 12? The War Board direct-



Cantonment at Fort Riley, Kan., Showing a Train of Lumber Cars Which Have Just Been Unloaded

affidavits to be promptly furnished the exemption boards in the various districts.

RAILROAD WAR POSTERS

The Railroads' War Board has now had prepared three of a series of posters to be posted in various places where railway employees congregate, emphasizing the importance of railroad efficiency in war. The first of this series was described in these columns some time ago. The second is headed "Locomotives and Shrapnel" and shows a picture of

ing the operation of all the railroads in the United States during the period of the war, has issued a bulletin—No. 12—telling you how to help your country. Read it! Live up to it! The Nation is counting on you."

* * *

B. A. Enloe, chairman of the Tennessee Railroad Commission, has written a letter to Fairfax Harrison, chairman of the Railroads' War Board, in reply to Mr. Harrison's letter asking for the co-operation of state commissions in the work of conserving transportation. Mr. Enloe says his



Unloading Lumber at the Wrightstown, N. J., Cantonment

Uncle Sam pointing with one hand to a locomotive and with the other to a pile of ammunition. Below the picture is the following:

"Our Nation needs locomotives as much as shrapnel. Ordinarily, 15 per cent of all the locomotives on our railroads are in the repair shop. By reducing that percentage to 10 we can add 3,325 locomotives to the number available for use on our railroads. If we can keep more locomotives in good running order, we will help our country in

commission is making no unreasonable exactions of the railroads and is co-operating in various ways but he protests against the "unjust and unfair discrimination" practiced against the railroads of his state by allowing their equipment to be taken north of the Ohio river and held there instead of being returned. He cited figures to show that on July 1 the southeastern lines controlled 29 per cent less box cars than they owned and urged an increase in the per diem rate. After citing the increased demurrage rate, up

to \$5 per car per day, Mr. Enloe says the railroads are permitted to establish among themselves a per diem charge for the use of cars so small that many of them find it profitable to hold the equipment of their connections regardless of ownership. This letter was written before the War Board had made public the orders issued by the Commission on Car Service redistributing over 65,000 cars from eastern to southern and western lines.

* * *

The appointment of Robert S. Lovett, chairman of the executive committee of the Union Pacific, as a member of the new War Industries Board created by the Council of National Defense to take over the work of the General Munitions Board and in general to co-ordinate the industrial requirements of the war, doubtless will insure adequate recognition of the importance of taking into consideration the needs of the railways for materials and supplies to enable them to carry on their part of the work. Mr. Lovett is to have particular charge of matters of priority. The General Munitions Board has had a committee on priority which has attempted to guide to some extent the matter of giving preference in the manufacture of articles especially needed for war purposes and under its direction the requirements of the government for steel and other materials has naturally been given precedence over other requirements, but the new board will have much greater authority in this respect. Without maintaining any definite priority list the priority committee has given some consideration to the needs of the railways as presented to it by the special committee on materials and supplies of the Railroads' War Board. The railroad special committee has recently compiled for its consideration an estimate of the principal materials needed for railway operation and maintenance for the coming year.

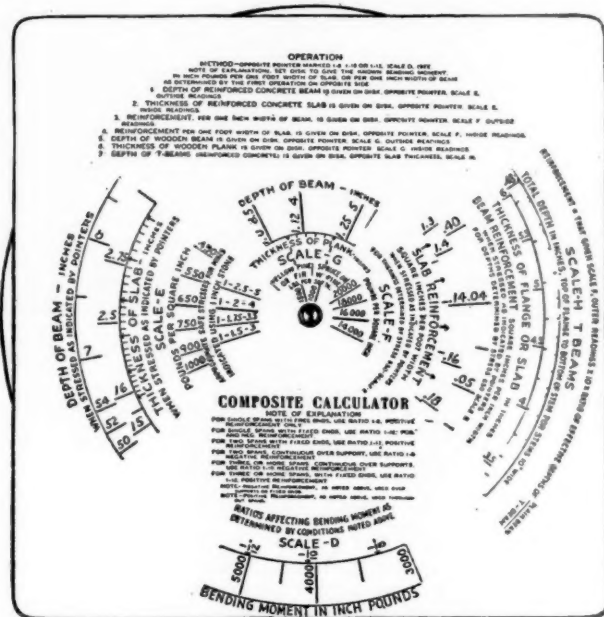
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A deputation of British railway officers representing the British Railway Executive Committee held a conference with the Railroads' War Board at Washington last week with reference to railway conditions in Great Britain and ways in which this country may render assistance by furnishing certain railway material required. The deputation consisted of Sir Francis Dent, general manager of the Southeastern & Chatham, C. J. Bowen-Cooke, general manager of the

C. M. Levy, president of the Western Pacific, and L. C. Gilman of the Spokane, Portland & Seattle, have been appointed as additional members of the western department committee of the Special Committee on National Defense.

A COMPOSITE CALCULATOR

A calculating device of the card-disk slide rule type has recently been introduced for the designing of reinforced concrete slabs, beams and girders and for the proportioning of timber beams and girders. For the purpose of design,



Working Face of the Calculator

the calculator can be used to obtain the size of reinforced concrete plain beams and T-beams, the thickness of concrete slabs, the reinforcement of beams and slabs and the width and depth of wooden beams. It can also be used for checking the safe loads on beams and slabs of any kind,



Laying the Tracks Over Which to Move Construction Materials for the Petersburg, Va., Cantonment

London & Northwestern, and A. J. Hill, chief mechanical engineer of the Great Eastern Railway. The deputation spent the week-end on a trip over the main line of the Pennsylvania with President Rea. A brief inspection was made of the shops at Altoona.

for comparing the relative size of plain and "T" concrete beams, for comparing concrete designs with timber designs and for other purposes, including ordinary multiplication and division as done on the common slide rule. The calculators are made by Kolesch & Co., 138 Fulton St., New York.

Bridge Work on the Chalco-Yutan Cut-Off

The Structure Over the Platte River on the New Burlington Line Involved Ingenious Foundation Methods

THE Chicago, Burlington & Quincy recently completed a cut-off 12.37 miles long which shortens the distance over its line between Omaha and Sioux City, Iowa, by 15.74 miles and provides a low grade line from Omaha into the Platte river valley. The new line is known as the Chalco-Yutan cut-off as it begins at a point 2.89 miles west of Chal-

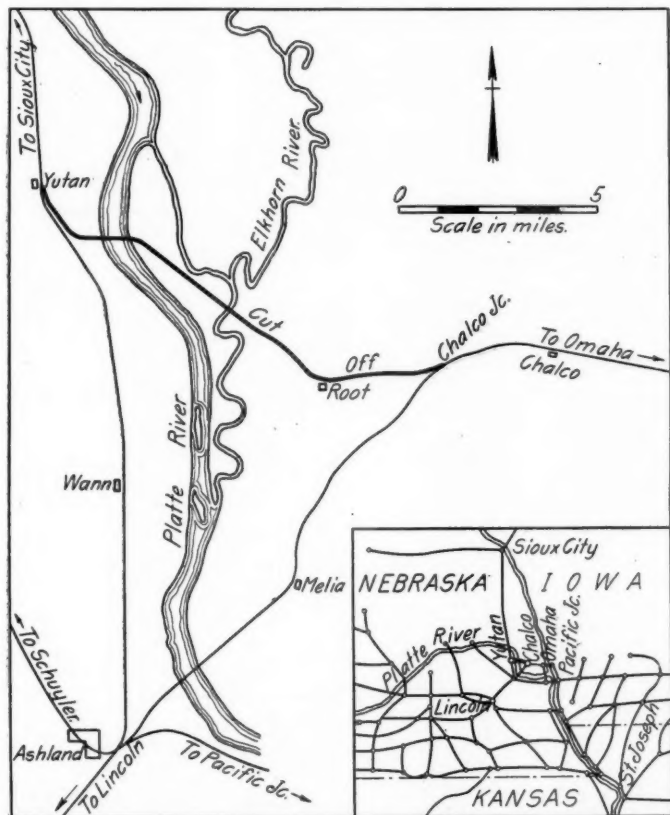
The line involved considerable heavy work for this part of the country. One cut, consisting of about 250,000 cu. yd. of earth, caused trouble because several springs were encountered about 25 ft. above grade. The material was all handled by steam shovel and trains. Excavated material was hauled from three to five miles for use in embankments in the Platte river bottoms. The grade for four miles across these bottoms was built by a drag line outfit and was rather wet work.

The tracks were carried over the Elkhorn river on a temporary pile and frame trestle which was later replaced by a permanent structure consisting of two 50-ft. spans, one 100-ft. span and one 105-ft. span, all deck plate girders. The grade of this bridge is about 40 ft. above the river, necessitating high piers. The foundations for these piers consist of 18-ft. by 40-ft. concrete box cofferdams 15 ft. deep, sunk by excavating the material from within which was handled by a track derrick and an orange peel bucket operated from the track on the temporary bridge. Wooden foundation piling were then driven within these boxes and capped with concrete on which the neat work of the piers was constructed.

The east approach fill to the Platte river bridge is composed of sand excavated from the river by a drag line. Five hundred feet of this approach was built in the river, the drag line working from the new fill and moving forward as it was completed.

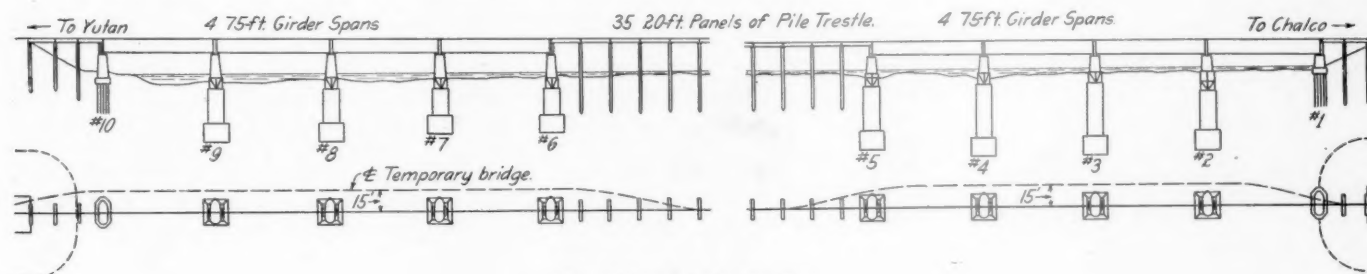
THE NEW PLATTE RIVER BRIDGE

The Platte river bridge has a total length of 1,383 ft. and consists of four 75-ft. girder spans on each side of the river with 700 ft. of pile trestle between and short bank spans at the outer ends. The entire bridge is on a tangent on a 0.5 per cent grade. The two girder structures at each end of the bridge cross the main and secondary channels characteristic of the Platte river, necessitating the provision of ample waterway openings close to each shore line. The middle of the river is usually very shallow and in the dry season is a dry sand-bar which seldom or never scours out to any great depth so that deep piers are not necessary there for the safety of the bridge. By building the approach fills out from both sides the river has been narrowed from 2,000 ft. to 1,300 ft., thereby causing the channels to scour out under the bridge and providing deep water which permits the free passage of ice and drift during flood stages.



Location of the New Line

co, Neb., on the Chicago-Denver main line and ends at Yutan, Neb., on the line between Ashland and Sioux City. The most important single feature of the project is the bridge over the Platte river near Yutan, which is the second per-



Elevation of the Bridge

manent structure built by the Burlington over that stream in the last few years.

CONSTRUCTION OF THE LINE

The construction of this line was begun in 1914, but work was suspended at the beginning of the European war. It was again resumed in 1916 and completed early in 1917.

The substructure consists of eight deep piers and two shore piers. The latter are founded on thirty 28- and 24-ft. concrete piles driven to a depth of 6 to 8 ft. below low water. The river piers were originally planned to be sunk by the open dredging method but the pneumatic process was later adopted.

A temporary pile trestle was constructed across the river

from which all material was handled for constructing and sinking the caissons. The trestle was built to grade. Opposite the pier sites it was located 15 ft. up stream from the permanent bridge line, but between the two girder structures it was swung over on the center line and joined the permanent trestle which was driven in time to serve for construction purposes.

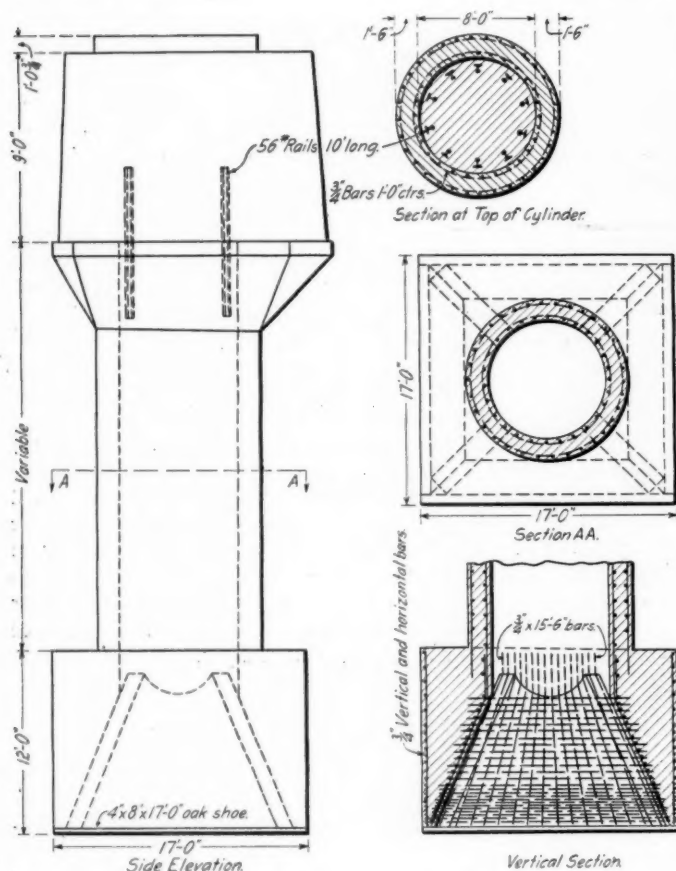
THE CAISSONS

The caissons were of concrete construction, 17 ft. square at the cutting edge. This edge consisted of 4-in. by 8-in. fir timbers fastened to the caisson by 1-in. bolts 24 in. long embedded in the concrete. The outside surface of each caisson was perpendicular for 12 ft., then offset to an 11-ft. cylinder. The inside was 15 ft. 8 in. square at the cutting edge and converted to a circle 8 ft. in diameter at a point 9 ft. above, thus forming an 8-ft. well through which dredging was carried on. The base sections were heavily reinforced on both the inner and outer surfaces. The forms for the bases were of wood and so built as to permit their removal and re-use.

Owing to the shallow waters of the Platte, it was possible to place wooden cofferdam boxes at the pier sites and fill them with sand dredged from the river, thus forming a foundation on which the forms for these caissons were

bases of all eight caissons were built in place and sunk to a depth of 12 ft. to make them safer after which it was planned to go back and complete the sinking which could be done regardless of high water. Each base or bottom section of the caisson was 17 ft. high, that is, 12 ft. of the square base and 5 ft. of an 11-ft. cylinder. Additional sections of cylinder were added as the sinking progressed. Forms for the cylinders were of steel for the outside and collapsible wooden forms for the inside.

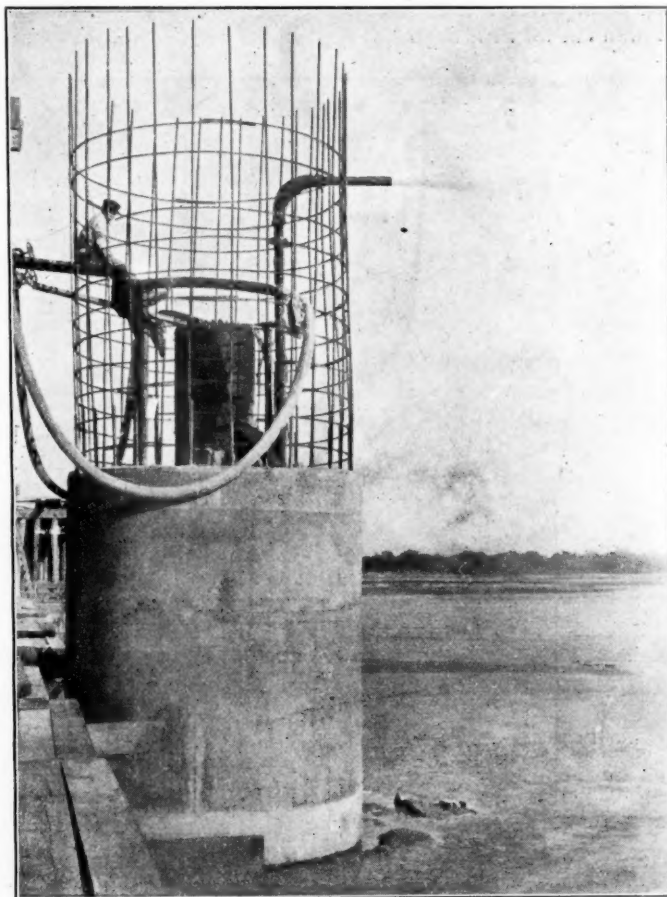
Test borings taken some time before indicated loose sand



Details of a Pier and Caisson

erected and concreted. The box cofferdams were built 6 ft. high and 24 ft. square, using 4-in. by 10-in. timbers with 6-in. by 8-in. posts or studding. The sides of the boxes were made separate and were bolted together when in use. Before placing these boxes, it was necessary to build a temporary diversion dam up stream from the proposed pier sites in order to deaden the current, causing silt to be deposited below which decreased the depth of the water in some cases 10 to 3 ft.

To take advantage of low water during the summer the



The Caisson for Pier No. 8

to a depth of 27 ft. below the water surface, then a 2-ft. stratum of clay, under which was a hard white sand or sandstone for an additional depth of 9 ft. Under that a yellow sandstone was encountered, into which the caissons were sunk to a depth of 5 ft.

Piers 6 and 7 were sunk first. These were dredged out and sunk at the rate of 10 to 13 ft. per 10-hour day until the clay and sandstone were encountered. At this point it was impossible to get any more settlement, although the excavation was carried down to a depth of 10 ft. below the cutting edges. Owing to the flaring base of the caissons it was impossible to excavate close to the cutting edges with the dredge bucket through the 8-ft. well. Various means were employed to break up the clay and sandstone under the cutting edges but without success. Because of this condition it was decided to use the pneumatic process to complete the sinking.

PNEUMATIC WORK

Up to this time work was carried on by company forces, but the pneumatic work was let to a contractor. The necessary pressure plant was installed and the open caissons were covered and fitted with air appliances. Wooden decks were made of 8-in. by 16-in. timbers to fit the 8-ft. wells in the

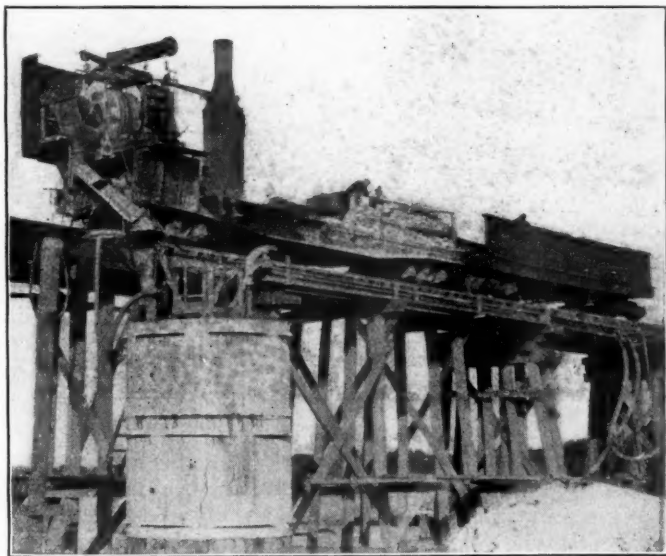
cylinders. After each deck was provided with one 3-ft. man shaft and the necessary air, water and blow pipes, it was lowered to the bottom of the 8-ft. well and supported just above the flare inside of the base. The sides of the deck were padded with oakum and covered with burlap to take up any irregularities on the surface of the concrete inside the well. This permitted sealing with concrete under water. From three to five feet of a concrete seal was placed in this manner and when set the caisson was unwatered above the



Rock Filled Cribs and Rip Rap to Protect Embankment

deck and concreted to above the water surface. Sand hogs were then able to continue the excavation and the sinking progressed to a landing without further trouble. In some cases it was necessary to go to a depth of 58 ft. to obtain a suitable foundation.

All concrete work was handled by a 10-cu. ft. Ransome mixer mounted on a flat car and operated by steam from a small upright boiler placed on the car. Bank run gravel was conveyed to the mixer hopper from cars adjacent by



The Concrete Mixer Plant

means of a narrow-gage dump car on rails laid on the deck of gravel and mixer cars. The mixed concrete was handled to the forms by spouting.

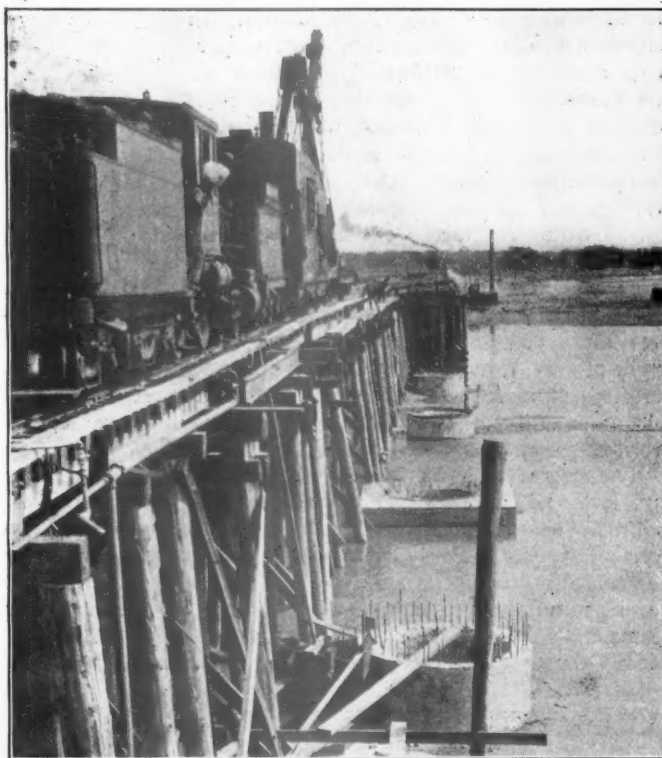
THE SUPERSTRUCTURE

The eight spans of 75-ft. girders were placed in two days by a 25-ton track derrick and a 25-ton locomotive crane. The girders were loaded at the storage yard and hauled $\frac{1}{4}$ mile on two flat cars, two girders or one span at a time.

Each girder was placed separately, and they were bolted together after landing them on the piers. The bridge floors consist of 8-in. by 10-in. by 10-ft. creosoted ties with 4-in. spaces between them, covered with a fire-resisting paint.

The timber trestle between the girder bridges is 700 ft. long. Each bent consists of six 44-ft. creosoted piles, sway-braced and box-capped with two 8-in. by 16-in. by 14-ft. timbers. The bents are spaced 20 ft. center to center and the deck consists of 9-in. by 24-in. stringers with 8-in. by 8-in. by 10-ft. ties spaced 14 in. center to center with 6-in. by 8-in. outside guard rails. Each bent is protected on the upstream end with a steel nose rounded to fit the piling, and, in addition the sides of each bent are protected from ice by 4-in. by 10-in. timbers placed horizontally. The deck of this trestle is covered with galvanized iron as a protection from fire. Three hand car refuge platforms are provided at a uniform spacing on the upstream side of the bridge.

The Union Bridge & Construction Company, of Kansas City, Mo., was the contractor for the pneumatic piers. All



Partly Completed Piers

the other work was handled by railroad forces. The construction was under the supervision of G. A. Haggander, bridge engineer of the Chicago, Burlington & Quincy, Chicago, Ill., F. T. Darrow, engineer maintenance of way, Lincoln, Neb., and J. H. Merriam, resident engineer, in direct charge.

JAPANESE OUTPUT AND EXPORT OF COPPER ORE.—The output of copper ore in Japan in 1916 amounted to 111,562 tons, as compared with 83,017 tons in 1915, and 78,700 tons in 1914, while exports amounted to 57,402 tons in 1916, as against 56,528 tons in 1915, and 43,305 tons in 1914. Russia now buys most of Japan's copper ore, her purchases amounting to 60 per cent of the total exports. The United Kingdom takes 20 per cent, while France, the United States and India share the balance, but their dealings are not large. The consumption of copper ore in Japan has increased considerably during the last three years, the consumption of 1916 amounting to 59,690 tons, as compared with 27,723 tons in 1915 and 32,045 tons in 1914.

EMPLOYEES' CO-OPERATIVE FARM ON THE ILLINOIS CENTRAL

Illinois Central employees, on Saturday, July 28, participated in a celebration in recognition of the successful organization and operation of a co-operative farm project on company property between the tracks of the Illinois Central and the Chicago & Eastern Illinois at One Hundred and Thirtieth street, Chicago. This tract, known as the Wildwood Farm, represents a new departure in railway agricultural activities. In response to President Wilson's proclamation urging the most extensive production of food stuffs in the interests of the success of the United States and its allies in the war, W. L. Park, vice-president of the Illinois Central, offered the company's right of way and vacant property to employees for garden purposes. Complying with this offer, employees of the railroad in Chicago under the leadership of Wm. J. Pinkerton, an engine foreman, induced Mr. Park to prevail upon C. H. Markham, president of the company, to set aside the unused right of way near One Hundred and Thirtieth street for the purpose of testing a plan of co-operative farming. This plan was advantageous, because a scheme of allotment to individual employees was not feasible on account of the distance of available land from the homes of the men. On April 15 Mr. Pinkerton organized the Volunteer Agricultural Corps of Illinois Central Employees to finance and direct the cultivation of the right-of-way tract offered by the management. After interested employees had cleared the land of old ties, fences and accumulated litter, two farmers were hired to carry on the work of plowing and seeding the land.

The engineering department sent men to the ground to run levels so that the furrows could be plowed to the lowest point for drainage. A farm house was constructed from two refrigerator car bodies and a stable from a box-car. The compensation of the farmers was fixed at \$8.00 a day, which covers not only their own labor but the services of their teams. Tools, seed and water supply were secured and on May 4 the first seeding was done, when four acres were put



General View of Farm Towards C. & E. I. Tracks

into yellow dry onions. Since that time 60 out of the 90 acres available have been planted with various vegetables, including beets, carrots, parsnips, cabbage, cauliflower, spinach, radishes, turnips, lettuce, beans, potatoes, tomatoes and corn.

In doing the work the farmers have been assisted by two negro laborers and by those members of the volunteer

corps who have found it possible to put in some of their spare time on the farm.

PLAN OF ORGANIZATION

Under the terms of the temporary organization effected on April 15, employees and officers of the Illinois Central who took from 2 to 18 shares in the corps were made members of the organization. Each share carries with it the obligation to pay into the treasury of the corps the sum of \$1.00 per month for a period of six months beginning with April 1, 1917. The products of the farm are sold at prevailing commission market prices with no special privilege to members except the first choice of purchase. The proceeds of the sales are paid into the treasury of the corps, and will be utilized to pay the running expenses and provide for a working capital to continue operations in the ensuing year. In case there is a surplus it will be divided among the members in accordance with the number of shares held by each. The officers of the corps consist of a colonel, lieutenant colonel, major, eight trustees, and a general secretary and treasurer, who hereafter will be elected by a majority vote of the outstanding shares of the corps at the annual meeting of stockholders, the next session of which will take place on February 1, 1918. Under the temporary organization Joseph H. Nash, superintendent of motive power at Chicago, was made colonel and M. P. Blauvelt, until recently controller, general secretary and treasurer.

The official depository of the corps is the Woodlawn Trust & Savings Bank, Chicago. All funds paid into the treasury must be deposited by the general secretary and

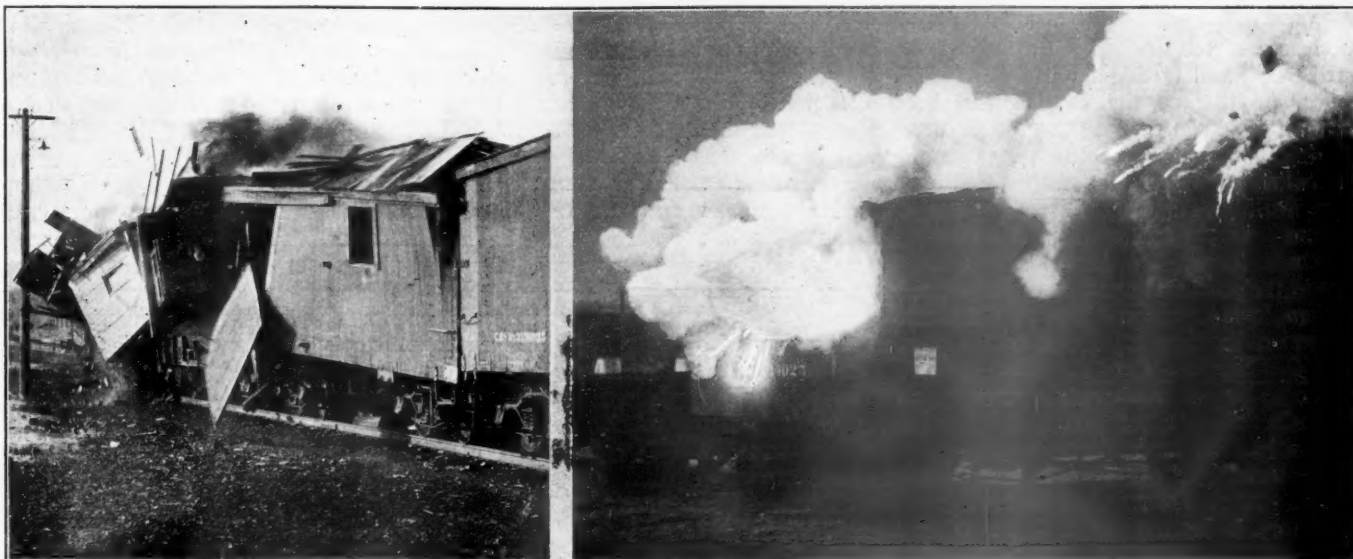


Captain William J. Pinkerton



A Field of Cabbages

treasurer within 24 hours of collection. All settlements of obligations of the corps of whatever amount or character must be made by draft or check upon the official depository, all of which must be signed by the colonel and general secretary-treasurer jointly. Up to date 200 officers and employees of the company of all ranks have taken shares in the corps. For several weeks past the farm has been making regular shipments of vegetables to members and others. According to the present scheme of distribution, the vegetables are shipped by suburban trains from Wildwood to various points on the Illinois Central where those sending in their orders are employed. The success of Wildwood Farm is largely due to the efforts of Illinois Central employees, rather than officers of the road. Foremost among these has been Mr. Pinkerton.



First and Last Stages of a Collision

"The Rule of Reason," a New Motion Picture

Striking Lessons in Safety First (Not Omitting a Forceful Anti-Whiskey Lecture) for New York Central Men

MARCUS A. DOW, general safety agent of the New York Central Lines, has brought out a third "safety film" for use in connection with the work of the safety committees of the roads in the New York Central system, and it was shown at the Rialto theatre in New York City on Tuesday of this week. This picture, entitled "The Rule of Reason," is a finished production, surpassing even the two former excellent works of Mr. Dow in this field, "Steve Hill's Awakening" and "The House that Jack Built." It has no

when working on or about freight trains, which are obvious to any man of sense, when he stops to think; with shop safety and some other things thrown in for good measure. The picture lesson is taken up with these things; but the spectator is taken up also with a love story, beautiful actresses, horseback rides, moonlight walks and the usual "movie" details, which make 50 or 60 minutes pass very quickly. Every detail has been managed with perfect skill, and Mr. Dow evidently has secured the best professional ability in all of his assistants.

The exhibition starts off with a verse—"Little Drops of Water, Tiny Grains of Sand," etc., and continues:

"Thus it is that little things make the joys and sorrows of life. Rules cannot govern every little action, every little deed. But common sense, let us call it the 'rule of reason,' will, if cultivated, bridge many a treacherous stream."

The story tells of the adventures of Bob Tracy, a young man employed as yard brakeman, who because of his unsafe habits is a thorn in the side of his brother-in-law, Jack Foster, the superintendent. Hoping to inculcate safety ideas in the young brakeman's mind, Foster puts him on the safety committee. Bob's sister, who is Superintendent Foster's wife, is horrified to discover accidentally that Bob is in the habit of taking, on the sly, a drink of intoxicating liquor from a flask he keeps in a closet at home, each day before he starts for work. He does not get drunk and even his fellow employees are not aware of his habit, which he has succeeded in concealing from others. Mrs. Foster concludes that Bob's carelessness—of which illustrations are given—is largely caused by the fact that his mental acuteness is impaired because of this secret violation of Rule G; and in a dramatic scene she endeavors to make him see that men engaged in hazardous employment should maintain habits that will insure a perfectly normal physical and mental condition at all times, which, to her mind, is a "rule of reason." Mrs. Foster's appeal to Bob, together with his first experience at the safety committee meeting, make a profound impression upon him. The influence of a little four-year-old girl, Baby Foster, his niece, innocently wielded in a sweet childish way, adds to Bob's concern and his con-



Result of a Collision*

connection with the abstruse reasonings which are to be found in Chief Justice White's celebrated decision, in which a certain "rule of reason" was laid down as the law of the land, but is wholly taken up, so far as the lesson goes, with the simple reasonings concerning the care of one's own bodily safety,

*The first and third stages of this made-to-order collision are shown at the head of the article. The first picture was taken at the moment of impact, and the second one a few seconds afterward; the explosion occurred a little later, in a car bearing an "Explosives" card which had not been heeded.

science finally revolts against his shortcomings. Neglecting to close a switch in the yard after he has let a train in on a yard track, and falling asleep because of his improper indulgence, he dreams that a frightful yard collision occurs through his neglect. His dream is pictured on the screen with vivid realism and the wreck scene is equal to and even exceeds in realism the wreck scene pictured in "The House That Jack Built." Told of the wreck by her young son, who saw it from a nearby embankment and who rides post haste on a bicycle to inform her, Mrs. Foster mounts a horse and gallops to the yard in time to save Bob from the fury of his fellow employees, who are bent on vengeance.

Awakening from his dream with a start and stricken with fear and horror, Bob stumbles forward and throws the switch to proper position, and then to his great relief finds the train still safe and that no collision in reality happened. He has had his lesson, however, and taking a flask from his pocket smashes it against a rail and resolves that both carefulness and abstinence shall be his habits for all time. The love story is intertwined with the other scenes, and in the end Bob's fiancée, Betty, who is a stenographer in the superintendent's office, shows her approval of Bob's reformation.

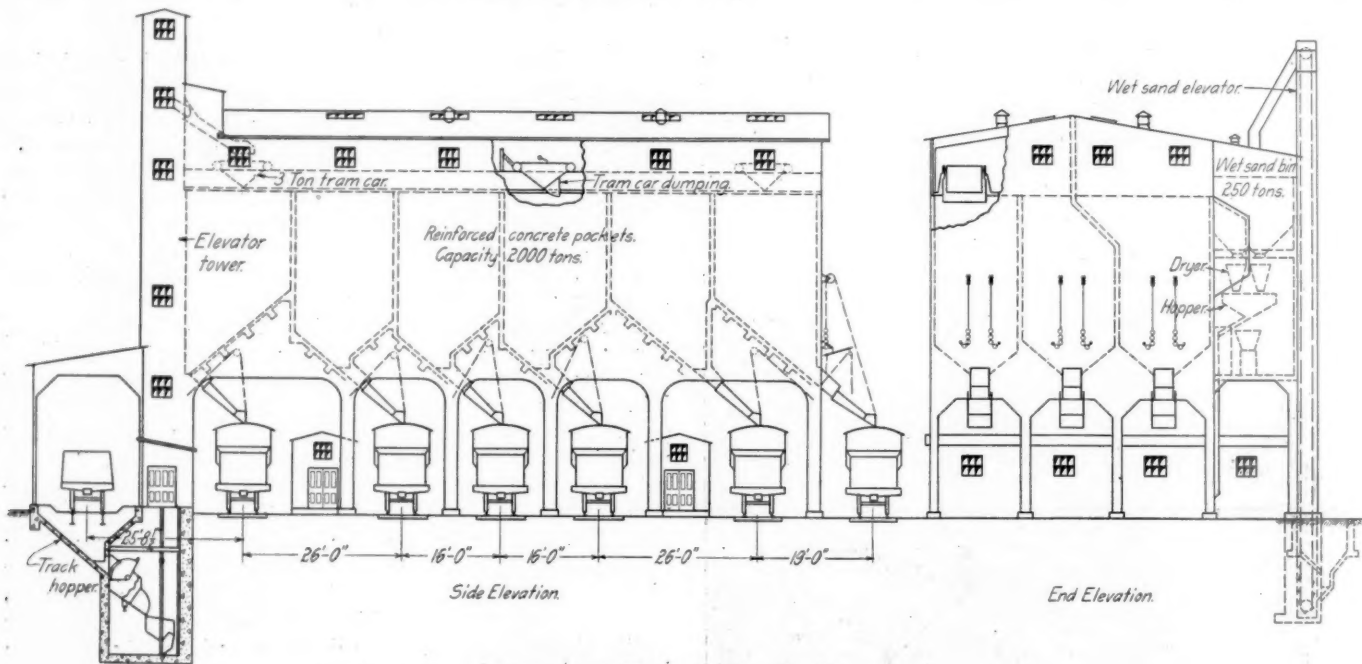
One prominent scene shows the safety committee in session in Superintendent Foster's office and with this a number of accidents due to unsafe practices are cleverly shown on the screen. The chairman of the committee is reading from the accident record book the records of accidents on his division and as the pages are turned each page dissolves into

who was Brakeman "Jack Foster" in "The House That Jack Built," is now Superintendent Foster in the new picture, a part which he plays with good taste and ability. Miss Elsie Balfour makes a pretty and winsome stenographer. Mention also should be made of the three children, all of whom are good, but the part played by little Miriam Battista, a clever child actress, who was with Maude Adams in "A Kiss for Cinderella" last season, is one which will have an especial appeal to all. The photography is exceptionally good, the work being done by Irving B. Ruby, camera man for the World Film Corporation.

The "Rule of Reason" will be shown to Central employees in the company's two motion picture cars, which are in reality up-to-date "movie" theatres on wheels. It will also be made the feature of many large safety rallies to be held in important cities during the coming months. The film will also be used, no doubt, by other railroads and industries, as was the case with the other films referred to.

THE LARGEST COALING STATION

Work has recently been commenced on a coaling station for the Philadelphia & Reading at Philadelphia, which will be the largest railway coal handling plant in this country. The capacity will be 2,000 tons; two-thirds of the storage space is reserved for anthracite, and one-third for bituminous coal. The storage will be divided into 18 bins. The plant will be of reinforced concrete and steel construction through-



General Outlines of The Structure

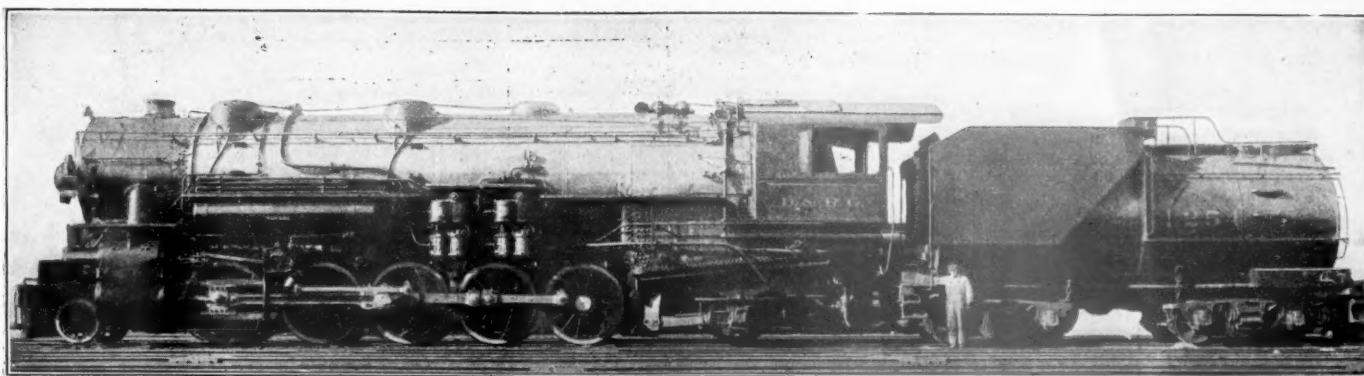
an actual motion picture of the accident described on the page.

The story is a strong one and the production a worthy successor of "The House That Jack Built" now well-known all over the country. As in the former picture, Charles E. Davenport of New York, staged the play with great ability and thoroughness as to detail. A strong cast of professional moving picture stars were assigned to the various roles. Miss Iva Shepard, who had the leading part in "The House That Jack Built," does excellent dramatic work as Mrs. Foster in this new picture. Robert Clugston, a leading man who has appeared in many Fox productions and others, does excellent work as the careless yard brakeman, a difficult part, to which only a finished actor could do justice. Al Thomas,

out, designed to serve locomotives on six tracks. Two large track hoppers will be provided to receive the coal, each of which will be equipped with elevating machinery capable of hoisting 125 tons of coal an hour.

In addition to the coal handling facilities, the plant will be equipped with sand drying and storage equipment, including a wet sand dump hopper, an elevator, a wet sand storage bin of 250-tons capacity, six Beamer steam sand dryers, and a 125-ton dry sand storage pocket, from which the dry sand can be supplied to locomotives standing on the six tracks. The plant will also be provided with wash houses, hostlers' room, heating appliances and electric lights.

The plant is being constructed by Roberts & Schaefer Company, Chicago, Ill., the contract price being \$265,000.



Denver & Rio Grande 2-10-2 Type Locomotive—The Heaviest of Its Type Yet Built

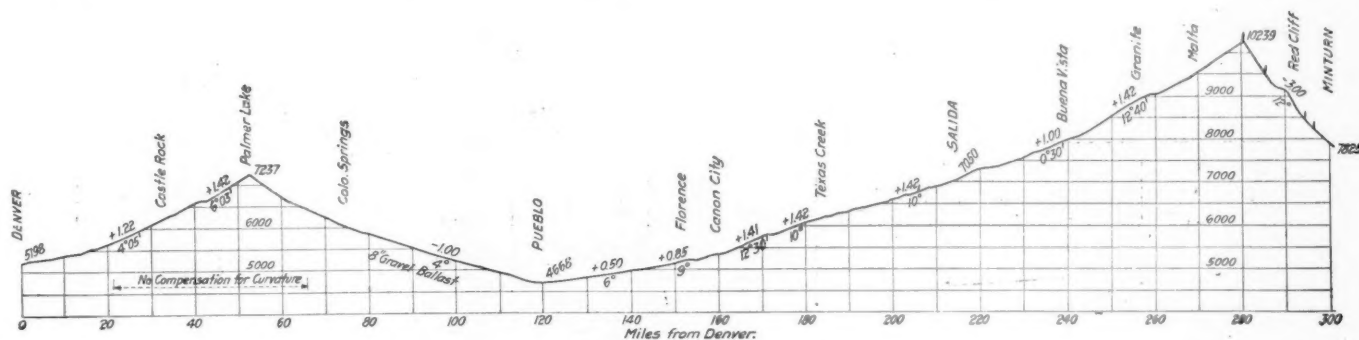
The Heaviest Santa Fe Type Locomotives

Used in Both Road and Pusher Service on the Heavy Grader of the Denver & Rio Grande Railroad

TEN of the heaviest locomotives of the 2-10-2 type ever built were delivered to the Denver & Rio Grande by the American Locomotive Company about six months ago. These locomotives weigh 428,500 lb. and have a tractive effort of 81,200 lb. Of the ten, five are being used between Denver and Salida, Col., on through freight trains and five are being used between Minturn and Tennessee Pass, Col., which is at the top of the grade between Minturn and Malta, as helpers. The condensed profile of the divisions on which these locomotives are operating is shown and, as will be seen, there are many heavy grades and sharp curves. On the line between Denver and Salida the maximum grade is 1.42 per cent with 6-deg. curves, not compensated, and at one point there is a 12-deg. 30-min. curve.

an increase of 13.4 per cent. While the traffic increased 1.2 per cent as compared with January, 1917, the train-miles decreased 7 per cent and the locomotive-miles decreased 11 per cent. A tabular comparison of these locomotives with the Consolidation and Mallet types, which are used in the same district, is given below:

Type	2-10-2	2-8-0	2-8-8-2
Service	Through freight and helper	Through freight	Helper
Tractive effort	81,200 lb.	44,000 lb.	95,000 lb.
Weight in working order	428,500 lb.	220,400 lb.	458,000 lb.
Weight on drivers	337,500 lb.	194,100 lb.	394,000 lb.
Weight of engine and tender	624,900 lb.	378,100 lb.	629,200 lb.
Wheel base, driving	22 ft. 6 in.	15 ft. 8 in.	40 ft. 8 1/2 in.



Profile of the Line on Which the 2-10-2 Type Locomotives Operate

Between Minturn and Tennessee Pass the maximum grade is 3 per cent and the westbound track has a maximum curvature of 16 deg. Since the rigid wheel base of these locomotives is only 16 ft. 6 in., no difficulty is experienced in operating on these sharp curves. The locomotives were not designed for helper service, the Mallet type being regularly used for that purpose. Owing to the demands of traffic it was found necessary to use a larger number of helper locomotives and the 2-10-2 type was chosen as best fitted for the work.

In the district between Denver and Salida the traffic amounts to approximately 80,000,000 ton-miles per month. About 25 locomotives are required to handle this tonnage. In January, 1917, when the Consolidation type was being used, the gross tons of freight per locomotive-mile in this district averaged 942. In March, with five of the 2-10-2 type locomotives in service, the average tonnage was 1,068,

Wheel base, rigid	16 ft. 6 in.	15 ft. 8 in.	15 ft. 0 in.
Wheel base, engine and tender	76 ft. 9 1/2 in.	59 ft. 5 1/4 in.	91 ft. 3 1/4 in.
Cylinders	31 in. by 32 in.	23 in. by 28 in.	26 in. and 40 in. by 32 in.
Driving wheel diameter	63 in.	57 in.	57 in.
Boiler, working pressure	195 lb. per sq. in.	200 lb. per sq. in.	200 lb. per sq. in.
Heating surface, total	5,369 sq. ft.	3,036 sq. ft.	5,125 sq. ft.
Superheater heating surface	1,329 sq. ft.		998 sq. ft.
Equivalent heating surface	7,362 sq. ft.	3,036 sq. ft.	6,622 sq. ft.
Grate area	88 sq. ft.	49 sq. ft.	80 sq. ft.

In order to make it possible for these locomotives to take 16-deg. curves without trouble, the tires on the first, the main, and the last pairs of drivers were set 53 3/8 in. apart. On the second and fourth pairs, the tires are set 53 3/8 in. apart. Lateral flexibility in the driving wheel base is secured by the use of the Woodward floating front driving

axle. The front truck has $6\frac{1}{2}$ -in. swing either side of the center and the trailing truck $4\frac{3}{4}$ in.

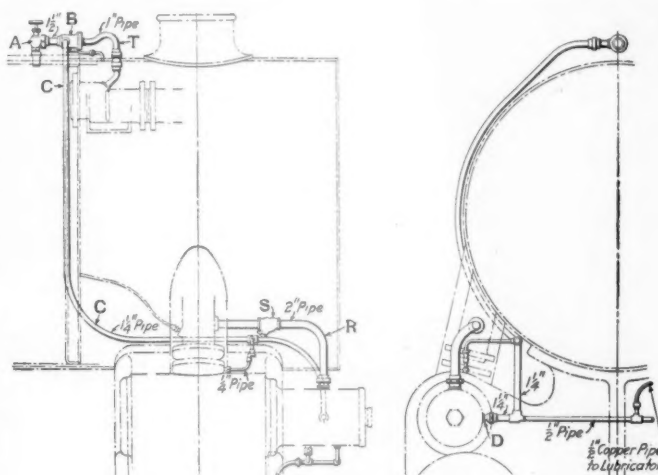
The boiler has been carefully designed to secure high capacity. It is of the conical type, being 96 in. in diameter at the first ring. An auxiliary dome is provided to carry the safety valves and the whistle. The firebox is fitted with a combustion chamber 50 in. long and has a Security brick arch. The locomotives have Schmidt superheaters and are fired by Street stokers. There are two blow-off cocks on each side of the firebox and one is placed in the front course of the boiler.

The frames are of cast steel, with a top rail 6 in. by 7 in. increasing to 6 in. by 9 in. over the driving boxes. The front frame rails are 6 in. by 13 in. The Commonwealth locomotive cradle is used. The cylinders have bushings of Hunt-Spiller gun iron, and the pistons are fitted with bull rings of the same material. The piston valves are 16 in. in diameter.

A new device which has been applied to these locomotives is the Vincent drifting valve. It consists of a valve attached on the end of the main valve stem and working in a chamber extending out from the valve head. This chamber is connected to the boiler through an automatic shut-off valve and to the steam pipe through a check valve. The operation of the drifting valve is as follows: When the main throttle is opened, superheated steam from the header passes through the pipe shown in the drawing at *T* to the differential valve *B* and closes it against the boiler pressure. When the main throttle is closed, saturated steam from the boiler is admitted through the valve *A* to the differential valve *B*, and thence through a $\frac{1}{4}$ -in. pipe *C* to the drifting valve connection *D* or *E*. It then passes into chamber *F*, through ports *G* into chamber *H*, and through ports *K* into chamber *L* or *M* according to the position of the valve *J*. When the position of the valve *J* is reversed, steam exhausts through

are of Nikrome steel. The valve motion is of the Baker type controlled by the American Locomotive Company's power reversing gear.

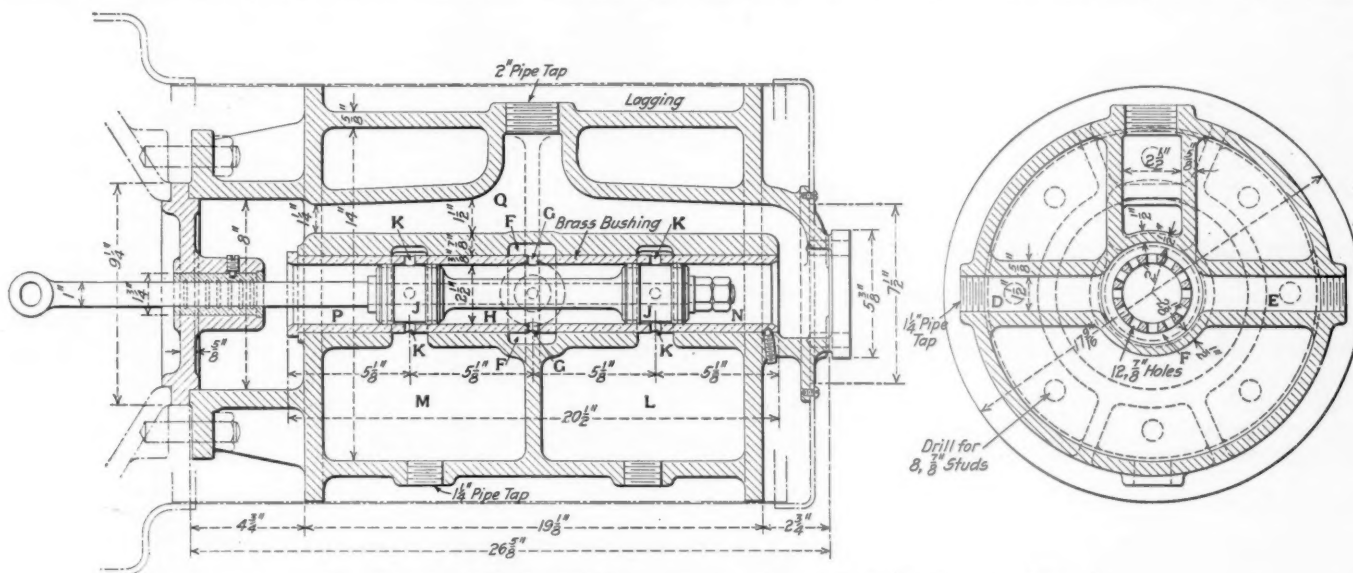
The brake equipment is the Westinghouse E T, with two $8\frac{1}{2}$ -in. air compressors. Two 14-in. by 12-in. brake cylinders attached to the frames behind the cylinders are provided



Piping for the Vincent Drifting Valve

for the first three pairs of drivers. The fulcrums for these cylinders are attached to the frames beneath the cylinder saddles. The two rear pairs of drivers are braked by two 12-in. by 10-in. cylinders. The tender trucks are provided with clasp brakes.

Among the specialties applied to these locomotives are the Chambers throttle, Nathan non-lifting injectors, Woodward engine trucks, Cole trailing truck, Chicago flange lubrica-



The Vincent Drifting Valve in Use on the D. & R. G. Locomotives

the ports *K* and *N*, or *P*, into the chamber *Q*, and thence through the pipe *R* into the main steam pipe and steam chest. A check valve *S* prevents steam from the main steam pipe entering the pipe *R*. Drain pipes are provided at the bottom of the chambers *L* and *M*.

The tires on all wheels of these locomotives are flanged. The axles are of carbon vanadium steel, the main axle having bearings 13 in. in diameter and 22 in. long, while the front bearings are 11 in. by 19 in. and all others 11 in. by 13 in. The main crank pins have $9\frac{1}{2}$ -in. by 10-in. bearings for the main rods and $10\frac{1}{2}$ -in. by $5\frac{1}{2}$ -in. bearings for the side rods. The crank pins, side rods and piston rods

tor and Economy radial buffer. The tenders are equipped with Miner friction draft gear, Barber side bearings and lateral rollers, the Lindstrom syphon tank valves and Davis cast steel wheels.

The principal dimensions and ratios of these locomotives are as follows:

General Data

Gage	4 ft. $8\frac{1}{2}$ in.
Service	Freight
Fuel	Bit. coal
Tractive effort	81,200 lb.
Weight in working order	428,500 lb.
Weight on drivers	337,500 lb.
Weight on leading truck	31,000 lb.
Weight on trailing truck	60,000 lb.

General Data (continued)

Weight of engine and tender in working order.....	624,900 lb.
Wheel base, driving	22 ft. 6 in.
Wheel base, total	41 ft. 5 in.
Wheel base, engine and tender	76 ft. 9 1/2 in.

Ratios

Weight on drivers ÷ tractive effort.....	4.16
Total weight ÷ tractive effort.....	5.28
Tractive effort × diam. drivers ÷ equivalent heating surface*.....	694.9
Equivalent heating surface* ÷ grate area.....	83.66
Firebox heating surface ÷ equivalent heating surface*, per cent.....	5.00
Weight on drivers ÷ equivalent heating surface*.....	45.84
Total weight ÷ equivalent heating surface*.....	58.20
Volume both cylinders	27.95 cu. ft.
Equivalent heating surface* ÷ vol. cylinders.....	263.4
Grate area ÷ vol. cylinders	3.15

Cylinders

Kind	Simple
Diameter and stroke	31 in. by 32 in.

Valves

Kind	Piston
Diameter	16 in.
Greatest travel	6 3/4 in.
Outside lap	1 in.
Inside clearance	0 in.
Lead in full gear	3/16 in.

Wheels

Driving, diameter over tires	63 in.
Driving, thickness of tires.....	3 1/2 in.
Driving, journals, main, diameter and length.....	13 in. by 22 in.
Driving journals, front, diameter and length.....	11 in. by 19 in.
Driving journals, others, diameter and length.....	11 in. by 13 in.
Engine truck wheels, diameter	33 in.
Engine truck, journals.....	7 in. by 12 in.
Trailing truck wheels, diameter	42 in.
Trailing truck, journals	9 in. by 16 in.

Boiler

Style	Conical
Working pressure	195 lb. per sq. in.
Outside diameter of first ring.....	96 in.
Firebox, length and width.....	132 in. by 96 1/4 in.
Firebox, water space	front, 7 in.; sides and back, 6 in.
Tubes, number and outside diameter.....	252—2 1/4 in.
Flues, number and outside diameter.....	48—5 1/2 in.
Tubes and flues, length.....	23 ft. 0 in.
Heating surface, tubes and flues	5,001 sq. ft.
Heating surface, firebox†§	368 sq. ft.
Heating surface, total	5,369 sq. ft.
Superheater heating surface	1,329 sq. ft.
Equivalent heating surface*	7,362 sq. ft.
Grate area	88 sq. ft.

Tender

Tank	Vanderbilt
Frame	Cast Steel
Weight	196,400 lb.
Wheels, diameter	33 in.
Journals, diameter and length.....	6 in. by 11 in.
Water capacity	10,000 gal.
Coal capacity	21 tons

*Equivalent heating surface = total evaporative heating surface + 1.5 times the superheating surface.

†Includes arch tube heating surface.

§Includes combustion chamber heating surface.

PNEUMATIC TUBES IN FREIGHT YARDS

The great length of the modern classification yard introduces a serious problem for the operating force through the difficulty encountered in securing adequate communication between the several parts of these large terminals. Telephones supply the necessary facilities for oral communication but the delivery of way bills and other papers from incoming trains to the main yard office, usually located at

opportunities for serious loss of time, particularly if one or more bills are found missing when a train is ready to leave. Delays from this cause can easily amount to 30 minutes or more in each case.

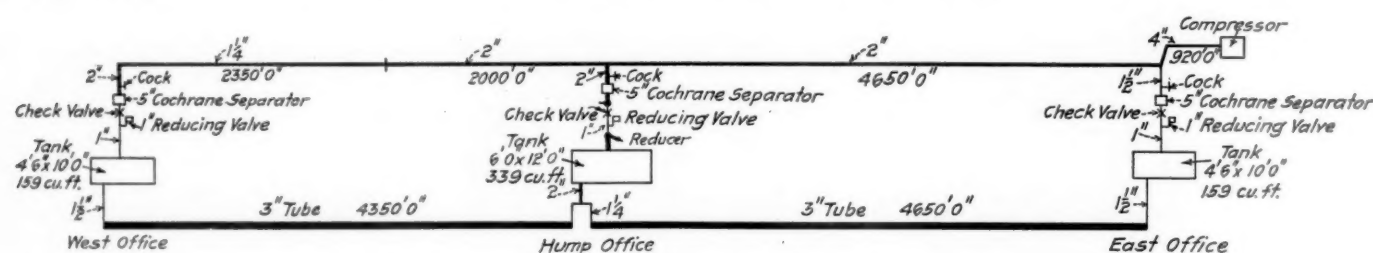
The employment of messengers for this purpose and the delays incident to messenger service have been done away with at the Gibson yard of the Indiana Harbor Belt and the Clearing yard of the Belt Railway of Chicago, by the use of pneumatic tubes connecting the general offices, situated at the hump, with the offices at each end of the yard. At the Gibson yard the installation consists of lines of 3-in. steel tubing running 4,350 ft. west and 4,650 ft. east of the hump, laid 3 ft. to 4 ft. underground. These tubes are open at both ends. In sending, a carrier is inserted in the terminal, the flapper is closed, and air is admitted behind the carrier by pressing a button, which actuates an automatic control device by means of which the air is delivered from a low pressure storage tank for a predetermined period sufficient to insure the arrival of the carrier at the other end of the tube. This air is supplied to the storage tank from the regular railroad service, having a pressure of 90 lb. to 110 lb. per sq. in. at the compressor. There are three cylindrical tanks, one at each sending point, that is, at the hump office and at the east and west yard offices. The arrangement of the supply pipes and valves is shown in the drawing.

At Clearing the tubes are 4 in. diameter and besides the two main lines, short leads connect with the office of the hump yard master and the switching tower at the hump. As these tubes will deliver a package a distance of about a mile in two minutes there is an obvious saving of time over any form of messenger service. At the Clearing yard this saving is estimated at 10 engine hours a day. That is to say, there is a saving of that amount in the time of the engine and train crews—say five men; and there is a potential saving of the per-diem cost of the cars in the trains, the movement of which is expedited.

At the Gibson plant the maintenance expenses average \$5.97 for three months' time, a figure which is said to be higher than normal. The carriers are handled by the regular clerk so that the expense to be charged for attendance is small. At Gibson the total number of carriers transmitted in a period of 24 hours recently was 220.

The tubes described were installed by the Lamson Company, Boston, Mass. The manufacturer is now recommending the use of motor-driven cycloidal blowers at each terminal, so arranged that they run only when a carrier is in the line. This system is said to operate with a much smaller power consumption than in the case where the air is taken from the regular yard air service.

WESTERN AUSTRALIA'S RAILWAYS FEEL LACK OF SHIPS.
—During the year ended June 30, 1916, there was a falling



Pneumatic Tubes at Gibson (Indiana) Freight Yard

the hump, and from the main office to the conductors of departing trains, has been a source of great inconvenience and no small delay. As ordinarily administered conductors must either deliver or call for these bills at the hump office or they are carried by messengers, either method offering op-

portunities for serious loss of time, particularly if one or more bills are found missing when a train is ready to leave. Delays from this cause can easily amount to 30 minutes or more in each case.

Proposed Federal Taxation of Railroads

Railway Executives' Advisory Committee Points Out Objections to Excess Profits and Surplus Taxes

THE Railway Executives' Advisory Committee, of which Frank Trumbull is chairman, and Alfred P. Thom general counsel, last week filed with the Senate finance committee a brief outlining the attitude of the railroads towards the proposed war taxes provided in the bill recently reported to the Senate, which represents many changes from the form in which the bill was passed by the House. The bill has since been referred back to the committee for further consideration.

Revision of the war revenue bill to increase its total from \$1,670,000,000 to about \$2,000,000,000 was undertaken by the Finance Committee on July 30, with the possibility of an increase in the income tax on corporations from 4 to 6 per cent under consideration. Modification or elimination of the 15 per cent surplus tax was also discussed.

No objection is made to the four per cent tax on net income, except as to the method of arriving at "net income." As to the graduated "excess profits" tax, it is contended that railroad charges are regulated by governmental authority and therefore the income therefrom cannot be considered excess profits and that moreover railway profits are not in excess of the needs for improvements and for maintaining credit. Somewhat similar objection is made to the proposed 15 per cent tax on undistributed surplus, and it is suggested that an allowance be made of 3 per cent on the assets as surplus. The brief also calls attention to some examples of the unequal and inequitable results of the proposed methods of taxation. An abstract of the brief follows:

INCOME TAX

It must be borne in mind that "net income" as here used has a special significance and is defined in the revenue bill—it is different from "net income" as defined under the rules of the Interstate Commerce Commission. This tax is common to all corporations, is considered by responsible governmental authority to be necessary because of war requirements, and, although heavy, is not complained of; except that it seems to us that the method of arriving at "net income" is unjust. Under the law as it stands, and under the pending proposal, a part only of the interest which a debtor corporation pays can be deducted. This results in a corporation debtor paying taxes on something which is a part of its debt, namely: the part of the interest which it is not permitted to deduct in arriving at its net income. Individuals are permitted to deduct the whole of their interest payments, and no good reason seems to exist why this prejudicial difference should be insisted on against corporation debtors.

The Income Tax Law of 1916 provides (and the proposed law follows it) that, in arriving at net income, an individual may deduct all the interest he pays, but a corporation can deduct from its gross income only the interest which it has paid on an amount of indebtedness equal to the sum of its capital stock plus one-half of its indebtedness. The New York Central has \$250,000,000 of stock and \$673,000,000 of debt. It has to pay the interest on all of this indebtedness, but in computing its net income it is allowed to deduct the interest only on \$587,000,000 ($\$250,000,000 + \$337,000,000$). Its net income is thus arbitrarily increased beyond what it actually is, by an amount equal to the interest paid on this \$86,000,000 of indebtedness. The Pennsylvania, on the other hand, has approximately \$500,000,000 of stock and \$250,000,000 of indebtedness. It would be allowed to deduct the interest on an amount of debt up to \$625,000,000

($\$500,000,000 + \$125,000,000$). Consequently, in arriving at its net income, that company would deduct the interest on all its debt.

This illustration shows the inequality of the provision, and we earnestly hope that in arriving at net income a deduction of all interest will be permitted. It must be remembered that the capitalization of railroads is now largely, and doubtless soon will be entirely controlled by governmental regulation, and there is consequently no danger of inflated obligations created for the purpose of escaping taxation.

"EXCESS PROFITS" TAX

It is manifest that whether profits are "excess" or not depends upon the definition in the law of the term "excess profits." It is respectfully submitted that railroads, subject to the regulating power of the Interstate Commerce Commission can, in the nature of things, have no excess profits. This is true for two reasons:

(a) *Railroad Charges Are Regulated by Governmental Authority, and Therefore Are Not "Excess."*

The law requires that the charges of railroads be fixed by governmental authority and shall be confined to what is reasonable and just for the service. It must be assumed that the regulating body does its duty, and that no charge of a railroad includes any amount which goes to make up an excess charge. If this be true as to each charge made by a railroad, it must likewise be true of the aggregate of its charges. Bearing in mind that any proper conception of "excess profits" due to the war conditions must be based upon war prices for the things sold, the conclusion seems inevitably to follow that in reality, there is no such thing as excess profits of railroads, because, being subject to governmental regulation, they are not able to take advantage of the economic law that prices are fixed by the relation of supply to demand, and consequently they have not been able to advance their charges, as industries generally have been able to do, to take advantage of war conditions. The revenues of the railroads may be said to be derived from their increased service alone, not from increased service plus increased charges, it being remembered that the recent partial increases in some of the rates to some of the railroads did not nearly suffice to compensate them for their increased expenses. Everything derived from stationary charges and increased service is properly embraced in income and cannot be considered excess profits. The income of the railroads from their increased business is subjected to the four per cent tax, and thus does not escape its due proportion of taxation.

(b) *Profits Are Not in Excess of Needs for Improvements and for Maintaining Credit.*

It is furthermore evident that, in reality, there are no excess profits of railroads when the matter is considered from the standpoint of the vital necessity for them to keep up their facilities to the level of the public needs. The railroads have had such small earnings, as compared with the industrial investments generally, that they have not been able to go into the market, and sell their stocks and bonds to obtain money for the improvement of their facilities. This is universally recognized as a most menacing situation. Profits which are insufficient to maintain credit to the point of enabling the owners of the property to finance wisely or on a sound basis cannot be considered as "excess."

The fact is that, in respect to earnings as in respect to the character of their service and their vital relationship to the public welfare, the railroads are inevitably segregated

into a separate class. This segregation into a separate class was made by law 30 years ago when the importance of the relationship of transportation to the public welfare was recognized as so great that a statute was enacted declaring this relationship and extending governmental control over the prices railroads might charge for their services.

Congress, in dealing with the question of imposing extraordinary tax burdens, is, in considering the railroads, confronted with a subject in respect to which it is recognized in the law and by public opinion that the supreme public interest is that their efficiency in performing their public service shall be assured—certainly not be impaired.

Considered from this point of view, the question which Congress must decide is which is the best for the public, to take from the carriers the amount involved in the excess tax (and the same considerations relate to the surplus tax), or to leave this amount in the treasury of the carriers to be used in the production of increased and improved transportation facilities or as a reserve basis of credit on which the money needed to create the additional facilities may be borrowed.

It is manifest that the answer to this question depends upon whether the facilities of the railroads are already equal to the public needs, and, if not, whether from other sources the railroads can secure the money necessary to provide such additional facilities as are needed.

The evidence on this subject is significant. Without going into a full statement, it seems sufficient to point to the proof which Congress has itself recently given in passing a bill conferring upon the President the right to order priority and preference between shipments. This action was based upon the conviction that the transportation facilities are not now sufficient to move promptly without preference the commerce of the country with the added transportation required by the war needs of the government and its allies. This means that, in the opinion of Congress, the present facilities of the railroads are not sufficient for the extraordinary demands upon them.

Moreover, the action of a distinguished senator, backed as we understand by a not inconsiderable opinion in the Senate, in proposing a governmental appropriation of \$100,000,000 to buy cars to be leased to the railroads is likewise based upon the conviction that more facilities are required.

Congress is, therefore, called upon, in its tax policy, to deal with a subject of taxation, the efficiency and adequacy of which are absolutely vital to the public safety and public welfare, and to determine what is best in the public interest in respect to the use which shall be made by the carriers of their earnings—whether, on the one hand, they shall be taken in the form of taxation, or, on the other, shall be available for use in direct payment for additional facilities or as a basis of credit to get the larger sums needed to create additional facilities admittedly essential to supply the public needs. In this connection, it must be borne in mind that, just to the extent that transportation facilities are inadequate, they impose a limit upon the transaction of business generally, and, thereby impose a limit upon the country's production. Such a check on production will reduce the income available for the use of the Government in the prosecution of the war.

In determining upon a policy, it is likewise essential for Congress to consider what the financial needs of the railroads are under existing conditions and in respect to securing money to improve their facilities. The financial markets of Europe are closed against them. The financial markets of America are absorbed by the war needs of our own government and by the superior inducements offered by industries which promise large and attractive returns.

Under these circumstances what is it wise for Congress, in the public interest, to do? Shall it define profits in such a way as to make a fund "excess profits," which, in reality,

is not excess profits, and to take a part of it in taxation; or shall the railroads be encouraged to use all of the earnings they properly can in the way of new facilities and to accumulate some margin of safety with the view of gradually improving their credit—the latter for the purpose of taking advantage of any easing-up in the general financial situation, and in that event obtaining new capital to supply the facilities which are absolutely essential to the public.

In this connection it might not be improper to recall that one of the purposes of raising money by the American government in its recent war loan is to lend a part of it to France to improve its railroad facilities and a part of it to Russia to improve its railroad facilities. Is it wise to pursue this constructive and liberal course in respect to the railroad facilities of France and Russia, and at the same time to pursue a policy at home which will have a substantial tendency to deprive our own people and our own government of adequate railroad facilities? Not only are our own railroads not the subject of governmental assistance in the way of financial advances, but, in reality, it is proposed to impose upon them extraordinary taxes which will substantially limit their own ability to perform a vital public service, and which will go in part to improve the transportation facilities of France and Russia.

It seems manifest that a wise public policy requires the conservation of railroad earnings—already insufficient for the war and other public demands upon them—to the end that they may be available for use or as a basis for improved transportation facilities, instead of taking these earnings by the imposition of extraordinary taxes on them. They can be more useful to the public in transportation than in taxes.

It follows that no definition should be given of excess profits as to railroads which would not be true in fact, and which, instead of taking an amount which would otherwise go to the private owners in the shape of dividends, would in reality be reducing and crippling the power of the railroads to furnish the transportation facilities which the public absolutely needs. These considerations are respectfully submitted, and seem to justify the exclusion of the railroads from what we have attempted to show is, as to them, erroneously termed an excess profits tax as well as from the surplus tax, hereinafter to be considered.

It may be objected that the argument above presented will apply to all taxation of railroads, and is not confined to "excess" and "surplus" taxes. This view, however, does not seem to us either sound or necessary. The thing to be preserved is the adequacy and efficiency of the railroads. The conclusion to be reached is what exaction, in the shape of taxes, can be made of the railroads without unduly crippling or reducing their adequacy and efficiency as transportation agencies. The line must be drawn between taxes which, according to this test, can properly be imposed and those which it would be injudicious to impose. It seems to us it should be drawn so as to exclude the railroads from the so-called excess profits and the surplus tax, but that, with the lights now before us, it is unnecessary to exclude them from the four per cent income tax.

If, however, it be considered impossible to exclude the railroads as a class from the "excess profits" tax, on the idea that some of them may be such heavy earners as would enable a particular company to provide the proper facilities and at the same time pay the tax, there should be adopted, at least as to the railroads, a definition of "excess profits," which would avoid the taking, in any form of taxes, money which the public interest requires should be retained by the railroads for the purpose of improving their facilities or for the establishment for them of reasonable credit.

It is respectfully submitted that a margin of allowance for this purpose would be an earning power of at least

eight per cent on the value of the assets of the company, whether these assets may have been acquired through borrowed money or by money paid in in the shape of capital contributed by the owners. The proposed act does permit, under certain circumstances, an allowance of six per cent on capital as defined in the act, but the definition of capital is in the act of such a nature as to exclude a very large part of what is really the company's capital.

The definition of capital as proposed in the act is as follows:

... fair average value of the assets actually invested and employed in the trade or business less the average amount of the liabilities incurred in respect to such trade or business.

This would result in imposing an income tax on interest paid out on debts; in the taking of a considerable part of the net income of these companies under the guise of an excess profits tax, as between the various companies, would impose a very different and inequitable burden. For example, if a company be capitalized so that two-thirds of its capital is represented by stock and one-third by bonds, it is manifest that this tax would bear in a very different way on it from the way in which it would bear upon a company where two-thirds of its capital was bonds and one-third stock.

Taking the case of two roads having the same property investment, the same aggregate capitalization and the same net earnings, but having their aggregate capitalization distributed between bonds and stock in the proportions just mentioned, and whose earnings were subnormal in the pre-war period, the amount of the deduction for normal profits, before "excess profits" are ascertained, would be very different in the two cases. In the one case, six per cent would be allowed as a deduction on approximately two-thirds of the asset values; whereas, in the other case, the deduction would be six per cent on approximately only one-third of the asset values. And yet the company which has been able to finance itself so as to have two-thirds of its capital represented by stock, would under this definition, have the smaller "excess profits" tax to pay, which would be clearly inequitable.

"SURPLUS TAX"

The considerations which have been above given in respect to the wisdom of imposing an excess profits tax are equally applicable to the proposed surplus tax. At least, a definition of "surplus" should be given which, while subjecting to taxation a company exceptionally strong and able to keep its facilities up to the public requirements, would avoid taking from other companies, not so fortunately situated, the funds necessary either as a means to protect credit or for the direct purpose of investment in improved facilities.

The tax is applicable only to that part of the net income that remains undistributed at a certain date, thus excluding from the tax all dividend distributions that may be made within the prescribed time. Manifestly the effect of this is to stimulate the distribution of profits in the shape of dividends. However wise this policy may be in respect to companies which have large accumulations of profits, it cannot be considered as having a wise application to the railroads when their relation to their undistributed income is correctly appreciated.

It is a fact which may be stated as almost universally true that there is no hoarding by railroads of their earnings. Where the books of the railroads show a large accumulated surplus, that surplus is not found in the bank in the shape of money subject to check, but in almost all cases has been plowed back into the property in the shape of improved facilities. If a substantial part of this surplus is to be taken under the taxing power, the money to pay it must be either withheld from its accustomed expenditure on the property, or a part of the property in which it has been invested

must be sold to pay it, or money must be borrowed for the purpose.

Credit is not maintained, but is impaired, by a policy which, instead of favoring the accumulation from earnings of an adequate surplus, forces exceptional distribution of such earnings to the owners, because the office of a surplus is to make and keep up credit and to furnish a basis for the improvement of facilities essential to the public needs. It seems, therefore, manifest that the policy of this surplus tax, which is to force large distribution of annual earnings, is not applicable in the case of the railroads.

As regards this tax, it should be borne in mind that it bears proportionately harder on the poorer roads which have not felt able to declare dividends, but resort to the conservative policy of using what earnings they have upon their properties devoted to the public service. In some sections of the country—notably the South—the present standard of transportation facilities has been attained by the adoption of this policy, and would not have been possible if the railroads had distributed their earnings in dividends. It may well be questioned whether any policy of taxation is wise which would discourage such a tendency and would result in a larger tax burden being placed upon roads which, for the purpose of improving their transportation facilities, refrain from declaring dividends.

Whether, therefore, the railroads should be absolutely excluded from this tax, or should be retained within its scope by a definition which would subject to the tax any company whose earnings may happen to be large enough to justify its imposition, is a matter for Congress to decide. If it be determined that the railroads should not be entirely excluded as a class, then they should be encouraged to accumulate, in the shape of a surplus, an amount reasonably adequate for the purpose of improving their facilities, and for the equally public purpose of establishing and stabilizing their credit.

It is submitted that if the railroads are permitted to deduct from their undistributed net income, before the surplus tax becomes applicable to it, an amount of three per centum of the value of their assets, no more would be reserved than sufficient for the essential needs of the company in the way of improving facilities and for the purpose of establishing and stabilizing credit.

This 3 per cent limitation will leave subject to the surplus tax all annual net earnings which are withheld, but which public policy might, as a war measure, require to be declared out in dividends and become subject to tax as part of the income of the stockholders.

It may be safely stated that the suggested annual allowance of 3 per cent on the assets as a surplus would receive the endorsement of the best financial and economic authorities.

UNEQUAL AND INEQUITABLE RESULTS

In a previous part of this memorandum reference was made to the unequal and inequitable results upon different railroads of the system of taxation proposed in the pending bill. As indicative of this inequality and unfairness of burden, attention is respectfully directed to the following cases which are worked out upon the basis of the earnings for the calendar year 1916.

First. Compare the Pennsylvania Railroad with the New York Central:

	Pennsylvania Railroad	New York Central
Total assets, December 31, 1916.....	\$1,058,826,941	\$1,076,919,058
Outstanding Capital:		
Stock	506,458,948	249,590,460
Funded debt	250,356,844	673,070,217
Total net income.....	46,558,313	46,374,101
Net income (less dividend income).....	29,815,260	35,274,404
Estimated war taxes:		
Normal income tax at 4%	1,192,610	1,410,976
Excess profits tax		2,279,023
Surplus tax at 15%	551,603	2,517,375
Total estimated war taxes.....	1,744,213	6,207,374

These two railroads are active competitors—their total capitalization is about the same—their total income for 1916

was about the same. The structure of their capitalization, however, is very different, the Pennsylvania having approximately two-thirds stock and one-third funded debt, while the New York Central has approximately one-fourth stock and three-fourths funded debt. Under the proposed tax system the Pennsylvania pays less than two millions in these taxes and the New York Central largely over six millions—the New York Central pays a fraction somewhat under 18 per cent of its net income (less dividend income), while the Pennsylvania Railroad pays less than 6 per cent; the Pennsylvania pays no excess profits tax, while the New York Central pays two millions and a quarter; and the Pennsylvania pays about half a million surplus tax, while the New York Central pays two millions and a half.

Second. Compare the Chicago, Milwaukee & St. Paul and Chicago & North Western:

	Chicago, Milwaukee & St. Paul	Chicago and North Western
Total assets, December 31, 1916.....	\$657,288,991	\$438,633,499
Outstanding Capital:		
Stock	233,287,984	152,606,807
Funded	490,547,155	205,909,500
Total net income.....	14,640,985	19,742,477
Net income (less dividend income).....	14,469,164	18,194,845
Estimated war taxes:		
Normal income tax at 4%.....	578,767	727,793
Excess profits tax.....	99,221	977,377
Surplus tax at 15%.....		1,286,638
Total	677,988	2,991,808

Thus it will be seen that the Chicago & North Western pays as taxes under this proposal considerably more than 16 per cent of its income (less dividend income), while the Chicago, Milwaukee & St. Paul pays a fraction over 4 per cent. Other inequalities will likewise appear by reference to the foregoing table.

Third. Compare the Chicago, Burlington & Quincy with any of the above-mentioned roads.

	Chicago, Burlington & Quincy
Total assets, December 31, 1916.....	\$544,305,600
Outstanding Capital:	
Stock	110,839,100
Funded	176,487,900
Total net income.....	33,582,610
Net income (less dividend income).....	33,572,610
Estimated war taxes:	
Normal income tax at 4%.....	1,343,304
Excess profits tax.....	1,400,299
Surplus tax at 15%.....	2,377,633
Total	5,121,236

From this it will be seen that the New York Central, which pays in these taxes about 18 per cent of its net income, and the Chicago & North Western, which pays about 16 per cent of its income, and the Burlington, which pays about 15 per cent of its income (less in each case dividend income), are somewhat in the same class, while the effect of the proposed tax on the Burlington contrasts in a very marked degree, and shows marked inequality when compared with the result on the Pennsylvania and Chicago, Milwaukee & St. Paul, the first of which pays a little less than 6 per cent on its net income, and the second of which pays a little over 4 per cent on its net income.

A careful study of the amendment relating to the deduction of dividends received will demonstrate that there is no sound reason for the qualification which excludes from the deduction a portion of the dividends received from other corporations. Since some deduction of dividends is proposed, the principle is recognized that earnings should not be subjected to double, triple and quadruple taxation in the course of their transfer from one corporation to another in the form of dividends. The qualification, as we understand it, is at variance with the fundamental principle which justified the amendment. The qualification necessarily results in double, triple, etc., taxation, of a substantial part of the net income of many corporations.

The provisions in reference to the deduction of dividends in the bill is as follows:

(d) For the purpose of the tax imposed by subdivision (a) of section ten, the income embraced in a return of a corporation, joint-stock company

or association, or insurance company shall be credited with the amount received as dividends upon the stock or from the net earnings of any other corporation, joint-stock company or association, or insurance company, which is taxable upon its net income as provided in this title, less that proportion of such amount which the amount received by the distributing corporation, joint-stock company or association, or insurance company from similar sources bears to the entire net income of such distributing corporation, joint-stock company or association, or insurance company.

This provision operates as follows:

The Union Pacific owns all the stock of the Oregon Short Line, and through that company controls a through line to the Pacific coast, which renders the public a most important service. The Oregon Short Line paid to the Union Pacific, as its sole stockholder, a dividend of \$8,000,000. But as 17 per cent of the entire net income of Oregon Short Line was derived from dividends received from other corporations, the Union Pacific is entitled, under the finance committee's qualifying amendment, to deduct, in computing its own income tax, only 83 per cent of the dividend received from the Oregon Short Line, or \$6,640,000, leaving 17 per cent, or \$1,360,000, to be taxed as part of the net income of the Union Pacific, although it has once been taxed as income of Oregon Short Line.

Another striking example is afforded by the Atchison, Topeka & Santa Fe. Many years ago that company mortgaged its property by instruments which contained after-acquired property clauses. When it became necessary to extend its lines in New Mexico, it was obliged to form a new company for the extension, the Atchison furnishing the capital and taking the stock of the New Mexico company—otherwise the property in New Mexico would have come under the previous mortgages of the Atchison, and would not have afforded a basis of credit necessary for the proposed construction.

It subsequently became desirable to extend the Atchison lines into Texas. The laws of Texas would not permit a foreign corporation to build a road in that state; consequently, a separate corporation was necessary for the purpose. The New Mexico company—a subsidiary of the Atchison—took the stock of this Texas company, and thereby the Atchison became "a holding company in the second degree," but became so as a means of creating a trunk line through New Mexico and Texas.

Under the operation of the proposed amendment, any dividend received by the Atchison from the New Mexico company, any part of which was made up from a dividend from the Texas company, must be reduced proportionately, although the whole transaction was merely a method of furnishing a great through system of railroad, and the form that it took was made necessary by business considerations and by the laws of Texas above mentioned. Inasmuch as the earnings of the Texas company would be taxed in the hands of that company, it would seem highly inequitable, and in violation of the principle of the proposed bill, which allows some deduction of dividends, to tax these earnings again when they reach the Atchison.

We therefore submit that dividends received from other corporations should be deducted in their entirety.

That part of income taken by the Government as "income" and "excess profits" taxes should be deducted in arriving at taxable income, just as the proposed law permits the deduction of all other taxes. Otherwise there will result a tax on taxes. Neither an individual nor a corporation should be required to pay a tax upon money which is required to be surrendered to the government in the form of taxes.

RESTRICTED RAILWAY TRAVELING IN DENMARK.—Owing to lack of coal in Denmark, which has already caused the limitation of railway traveling, the ministry of the interior has now further authorized the state and private railways to make restrictions as to the kinds of goods to be carried.



Women Sorting Scrap on the New York Central at Collinwood, Ohio; the Coil Springs and Other Material in the Foreground is Serviceable Material Picked Out by the Women

Women Well Adapted to Scrap Dock Labor

Their Employment at the Collinwood Shops of the New York Central Has Passed the Experimental Stage

CONDITIONS prevailing on account of the war, make it necessary to resort to many unusual means for the carrying on of the work of various departments of the railroads, the service of which is so essential during these trying times. Many of the male employees have enlisted; the ranks are gradually being depleted and it follows that

paid to men for the same class of labor and undoubtedly will become a regular part of the working force. It has been interesting to see the energy displayed by the women on this work. At the Collinwood scrap dock they have largely displaced colored labor imported from the South, the latter being more or less migratory and unreliable after pay day. They are much more steady and are very apt at learning to sort out usable material from a pile of scrap. They seem to possess a natural instinct for sorting out and saving good material. At times they may be seen criticising each other for discarding a bolt, nut or washer that should have been reclaimed. They respond readily when called upon to unload material from a gondola car. Since the photographs were taken they have adopted bloomers or overalls, thereby greatly



Women Reclaiming Bolts and Other Small Material from the Bins at the Collinwood Scrap Yard

work such as sorting scrap and many other operations must to a certain extent be performed by female labor.

The extent to which women may be used at the scrap docks, sorting and handling miscellaneous material is brought out clearly by the illustrations. The photographs were taken at the New York Central scrap dock at the Collinwood, Ohio, shops. The women have been employed here for some time under the jurisdiction of the general storekeeper of the Lines West. What at first was considered an experiment is now pronounced a success, all things considered, and has grown beyond the experimental stage.

The women are paid at the same rates of wages that were



A Group of Women Who Have Replaced Men as Scrap Handlers at Collinwood

enhancing their ability to climb on and off cars and to get around generally. They find that they can work much more freely and that they are in less danger when wearing overalls, as compared with their customary apparel. A dress often catches on projecting pieces of iron, making their work more or less hazardous.

YARDMEN'S STRIKE AT CHICAGO

A strike of switchmen belonging to the Brotherhood of Railroad Trainmen was called on nineteen roads in the Chicago switching district at 6 A. M. on July 28 and continued until 5:45 A. M. July 30, when, through the intervention of officers of the other three railway brotherhoods, headed by L. F. Sheppard, acting president of the Order of Railway Conductors, a settlement was reached. Although the Managers' Conference Committee of the Chicago roads proposed mediation by the Federal Board of Mediation and Conciliation, and George W. W. Hanger, a member of that board, personally tried to induce the men to submit their case to the body he represented, the switchmen were uncompromising in their insistence upon the demands which they had made. In substance, they wished to establish the closed shop in favor of members of their organization and to deprive the railroad managements of the power to appoint yardmasters and assistant yardmasters.

With reference to the specific demands of the Brotherhood of Railroad Trainmen, the Managers' Conference Committee made the following statement:

"First, 'In the employment of yardmen B. of R. T. men shall be given preference.' If this rule should be adopted the railways would be prevented from employing any but B. of R. T. men when there were any of them available, although more experienced and better qualified men might be available. The railways proposed that the rule should be made to read, 'In the employment of yardmen, experienced men will be given preferred consideration and B. of R. T. men will not be discriminated against.'

"Second, 'Yardmen discharged can only be reinstated by mutual agreement between officers of the company and the properly authorized committee representing them.' On a road having a contract with the Brotherhood of Railroad Trainmen the committee of this organization would be the only one representing the men. Therefore, if a non-union man or a member of the Switchmen's Union, of North America, which classes include 60 per cent of all the yardmen in Chicago, should leave the service for any cause, he could not, under the proposed rules, re-enter the service without the consent of the Brotherhood of Railroad Trainmen committee. For obvious reasons, this consent might be difficult to obtain. In other words, under the first rule the railway would be prevented from employing any but B. of R. T. men and under the second it could be prevented from reinstating any but B. of R. T. men. The managers' committee proposed in place of the second rule that 'Yardmen dismissed will forfeit all seniority rights, unless reinstated within one year.'

"The adoption of the rules proposed by the B. of R. T. would in time eliminate all non-union men and all members of the Switchmen's Union from the service of roads having contracts with the B. of R. T., while members of the B. of R. T. employed on roads having contracts with the Switchmen's Union would be left undisturbed.

"Third, 'In the employment of yardmasters and assistant yardmasters the senior qualified yardman shall be given preference.' On a road having the proposed closed shop for the benefit of the members of the B. of R. T., the senior yardman would, of course, be a member of that organization. The representatives of the Brotherhood of Railroad Trainmen charge that in appointing assistant yardmasters and yardmasters the railways have discriminated against members of their organization. The managements of the railroads have used their discretion in appointing assistant yardmasters and yardmasters, putting into those positions the men regarded as best qualified for them, whether yardmen, yard-clerks, trainmen, or in whatever branch of the service they may have been. The fact that about three-fourths of the assistant yardmasters and yardmasters of Chicago lines having contracts with the

B. of R. T. have been appointed from the ranks of yardmen refutes the charge of unfair discrimination. The rule proposed by the Managers' Conference Committee is that 'in the appointment of yardmasters and assistant yardmasters the senior yardmen will be given full and unprejudiced consideration.'

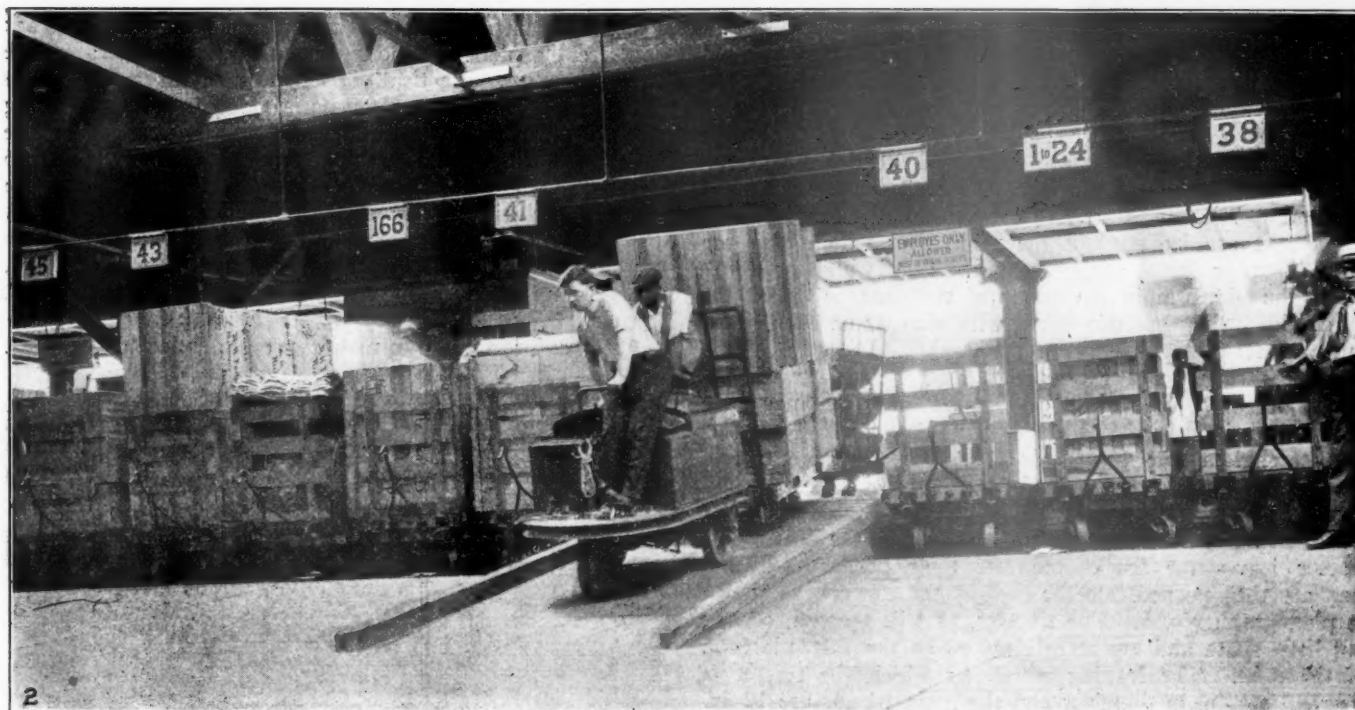
"The Commission of Eight in New York, representing both the four labor brotherhoods and the railways, decided that there should be a uniform meal hour for all employees in yard service; and the Managers' Conference Committee proposed action in accordance with this ruling. This the representatives of the B. of R. T. yardmen in Chicago declined to accept, thus refusing to abide by the decision of their own representatives on the Commission of Eight."

The demands made by the men were complicated by the fact that the railways had to consider not only the interests of the B. of R. T., who represented about 2500 of the switchmen employed in the Chicago terminals, but also nearly 2500 men belonging to the Switchmen's Union of North America and 1500 who were either non-union men or belonged to other labor organizations. In fact, J. G. Connors, assistant international president of the Switchmen's Union, notified the railroads that if the rules asked for by the B. of R. T. were adopted his organization would have no recourse but to strike.

Four hours after the strike had been declared reports from the various railroads involved indicated that all the way from 25 to 100 per cent of the normal business of the roads was being handled. This was very encouraging in view of the fact that a strike is generally considered won if 25 per cent of the normal business is handled on the second day. Some of the roads found it necessary to place embargoes upon the movements of live stock and perishables. Conditions on Sunday showed continued improvement. In comparison with preceding Sundays recently the percentage of switching crews working varied from 25 to 100 per cent with crews of 75 per cent or over on most of the lines.

Two acts of violence by strikers or strike sympathizers occurred on the Chicago & Alton about one o'clock Sunday morning. Three members of the B. of R. T., namely, Lee Hunt, who has been switching foreman at the Alton's Harrison street yard, C. C. O'Connell and F. T. Payne, switchmen, emptied a wheelbarrow load of bricks from a viaduct on some switchmen at work below. Two were struck on the feet by bricks but were not seriously hurt. An Alton watchman fired his revolver at the men, following which Hunt and O'Connell stopped and threw up their hands. They were turned over to the city police and will be prosecuted. At about the same hour at the Glen yards of the Chicago & Alton a switch was maliciously thrown in front of seven heavily loaded coal cars moving at considerable speed, derailling them and blocking the track for nine hours.

Late Sunday afternoon Mr. Sheppard and other brotherhood leaders arrived at Chicago and called at the offices of the Managers' Conference Committee, asking for a statement of circumstances in connection with the strike. As a result of conferences which ensued the following settlement was agreed to: First, that the men be returned to their positions at once without prejudice or loss of seniority. Second, that the questions at issue be disposed of as follows: (a) The meal period question to be settled by the Commission of Eight at New York; (b) the appointment of yardmasters, the reinstatements and employment of new men to be settled by a board consisting of Messrs. L. F. Sheppard, chairman; W. M. Clark, M. W. Cadle, H. E. Wills, L. J. Griffing, Arthur J. Lovell and S. A. Boone, representing the B. of R. T.; and the Managers' Conference Committee representing the railroads. The rights of all other employees are safeguarded by a clause reading: "It is agreed that the matters at issue are to be settled without the adoption of the closed shop rule or any rule that might fairly be considered as equivalent to such."



Outbound Freight, Pier 4, New York City

Electric Tractors at Pier 4, New York

Increasing the Capacity of a Busy Station Where Acquisition of Additional Land Is Out of the Question

A NOTABLE example of economical handling of package freight from wagon to freight car by means of electric tractors is that to be seen in the plant recently installed at the station of the Pennsylvania Railroad, Pier 4, North River, New York City. This station is one of the old-

The outbound platform of this station, fronting the street, is on a level with the tailboard of the wagons which bring merchandise to the station. When a wagon brings a shipment for a single destination which is large enough, the packages are loaded directly on to one of the four-wheel trucks and the truck is run over the scales. Smaller shipments are moved by hand trucks to the scales, thence to the proper four-wheel truck.

From the north to the south side of the station there are nine scales. From the scales freight is taken to one of the four-wheel trucks, a row of which, standing at the "loading



Loading Direct from Dray to Four-Wheel Truck

est in New York, and one in which is done a very large out-bound business, and the electric installation now includes 4 tractors and 225 four-wheel "trailers." This improvement has effected a marked increase in the capacity of the station and at the same time it is an important labor-saving proposition, though the distances which freight has to be trucked are not very long. The scheme answers directly the demand from Washington for conservation of man power as a measure to promote the success of the war.



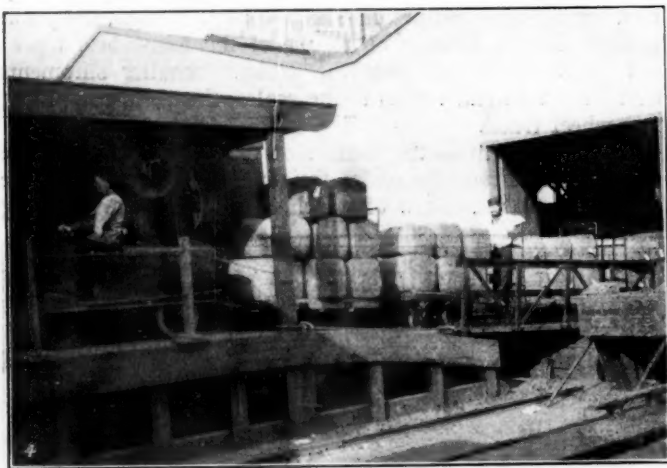
A Through Train

wharf," is seen in photograph No. 2. The numbers displayed above these trucks, 45, 43, 166, 41, 40, 1 to 24, 38—indicate the loading numbers of cars for specific destinations.

Forty-one, for instance, may be the Chicago car, and 40 that for Cincinnati. These numbers are for permanent use and the freight handlers familiarize themselves with them. The tractor in the center of this picture, coming down the ramp, is drawing a truck which has been loaded direct from a wagon. The other trucks are on a level 20 inches lower.

The cars into which the freight is loaded stand on floats tied to the dock; and the space between the "wharf" at which the trucks are loaded and the ramp over which they are moved—up or down, according as the tide is high or low—on to the platform in the center of the float, is called the yard. Each float has two tracks with six cars on each track, and a 7 ft. platform between the tracks. The slip affords space for four floats (48 cars). The space between the wharf at which the trucks are loaded and the outer edge of the dock is about 75 ft. wide. In this "yard" the trucks are marshalled into trains of 1, 2, 3, 4, or more trucks. Photograph No. 3 shows a train consisting of a tractor and three trucks. Photograph No. 4 shows a tractor and four trucks going up the incline to the platform on the float. The tractor leaves the trucks opposite their proper cars and they are then pushed into the cars by the stowers, as shown in photograph No. 5. The tractors, as will be seen, occupy but little space and are readily turned on the 7 ft. platform of the float. The leading wheel, by which the tractor is steered, is 6 in. in diameter and the main wheels are 12 in. in diameter. The trucks are 3 ft. wide and 6 ft. long, with 12 in. wheels. It will be noticed that the tongues of those trucks which are at rest are inclined upward but without the ordinary hook or chain to hold them in position. This upward position is maintained by means of a special device in the connection by which the tongue is secured at its lower end, to the body of the truck. The release of the tongue from its upward position and the coupling of the truck to the tractor is effected by a single simple motion. The floors of the trucks are 20 in. high and this is the height of the wharf behind the trucks shown in photograph No. 2.

The man on the platform who directs the outward move-



From Pier to Float; On the Up-Grade

ment of the four wheel trucks is called a despatcher. He sees that the trucks are moved to the proper position in the "yard" and calls for an empty truck to take the place of each loaded truck which goes out. The marshalling of the trucks into suitable trains by the tractors is supervised by a yard master and one assistant.

These tractors and trucks are busy from about 11 a. m. to the closing hour, 6 p. m.; and in the earlier part of the day, before the outbound movement becomes heavy, they are used to some extent for moving inbound freight. In the movement of outbound freight the tractors have given such a good account of themselves that the standing cause of complaint,

discouragement and waste of time so common at New York City freight piers—the long line of waiting trucks in the street—has been practically abolished, so far as Pier 4 is concerned. From time immemorial freight stations closing at 4:30 p. m. have been obliged to send a man out on the street at that hour and give tickets to the teamsters, lined up for from one to a dozen blocks, and give them admission tickets. Such tickets show that the holder has done his part toward delivering his load at the freight house before the closing hour. The teamster who has no ticket is shut out. Many schemes have been proposed for curing this trouble.

For the foregoing information we are indebted to H. C.



The Stowers' Part

Bixler, superintendent of stations and transfers of the Pennsylvania Railroad, who gives the credit for the marked success of this improvement in efficiency to M. Townsend, the veteran agent at Pier 4, and to his general foreman, C. M. Sullivan.

CEMENT IN GUATEMALA.—A new cement mill, with a capacity of from 50,000 to 100,000 barrels of cement per year, has just been opened about one mile from Guatemala City by American interests, acting under a special concession of the Guatemalan Government. The plant has been under construction for two years, and involves not only the mill itself, but two miles of railway connecting with the port. Practically all the machinery was manufactured in the United States. The new company is restricted under its franchise to a maximum charge of \$4 a barrel for its product. The managers state that they will be able to manufacture cement at a cost of \$1.25 a barrel.

RESTRICTED TRAVEL IN GERMANY.—Very urgent warnings against all avoidable traveling are now being issued by the German railway authorities, observes *The Times* (London) in its "Through German Eyes" columns. The public is told that the restrictions are much greater in England and France, that the German measures are very lenient, and that people are wisest to stay at home, where they are certain of food, even if the quantities of food are small. At the same time it is admitted that the Germans now have an unusual need of holidays and sufficient provision of really necessary trains is promised. It is worth noting that, instead of abandoning the reservation of seats, the German authorities have established the rule that all tickets for "holiday trains" must be bought in advance, and every ticket secures a place in the train. The Germans are solemnly assured that as regards coal they are better off than all other belligerent countries, but they are warned that there will be great privations next winter if the weather is not mild.

How One Road Increased Its Train Load*

Ratings Established by Road Tests; Simple Methods Used for Checking Performance of Each Train

By J. Lowell White

Assistant to the General Superintendent of Transportation,
Atlantic Coast Line, Wilmington, N. C.

IN response to a request for information as to how a certain large increase in the trainload had been obtained on his road, one of the best known executives in the United States once wrote:

"The only way to increase your train load is to begin at the station platform and in the yard. See first of all that your car is loaded to capacity, if you can do so. After that see that enough cars are put back of the engine so that you utilize the full tractive power of the engine in the direction of heavy traffic. It is a question of enormous detail and constant watching and pressure all along the line every year and every day of the year."

The importance of securing a maximum car-load in any

maximum car-loading, would have to be hauled in another train at an added expense.

It is the purpose here to deal more with the methods to be employed in seeing that "enough cars are put back of the engine" so that the full tractive power may be used: this being a field in which operating officers have complete control. The methods described are those adopted by the Atlantic Coast Line and have, it is believed, been largely instrumental in increasing the net revenue train load from 235 tons in 1915 to 274 tons in 1916 and to 329 tons for the last six months of the calendar year 1916, a total increase of 94 tons or 39 per cent; during which period the average tractive power of road engines increased but 1.7 per cent.

TABLE 1

No. Cars	Estab. Rating	July				Aug.				Sept.				Oct.				Nov.				5 Months			
Per Train	Tons	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
45 to 49	2230	7	8	46	2215	7	9	46	2245	9	10	45	2274	1	1	45	2268	8	8	45	2233	6	36	46	2244
50 to 54	2200	25	27	52	2181	16	20	52	2166	32	37	52	2198	21	21	53	2215	19	20	52	2210	23	125	52	2194
55 to 59	2170	42	46	57	2107	34	42	57	2173	42	49	58	2178	59	60	56	2176	55	57	57	2175	46	254	57	2163
60 to 65	2140	26	28	62	2085	43	53	62	2144	17	20	62	2142	19	19	62	2145	18	19	62	2140	25	139	62	2131
Total		-----																				100	554	56	2167

Column 1 - Per cent of total trains run
 " 2 - Number of trains run
 " 3 - Average number of cars per train
 " 4 - " " " " tons " "

Total tons (1,200,897) ÷ Average tons per train (2167) = 554 trains
 " " " " ÷ Ton rating for 60 cars (2140) = 561 "

Saving 7 "

campaign for increased train load may be overlooked unless one remembers the indisputable fact that any given engine can pull more tons when its load is concentrated in a short, solid train than it can when the same tonnage is strung out in many cars with hundreds of wheels grinding the rails.

It has been demonstrated in road tests that an engine with 34,000 lb. tractive power can haul as much as 360 tons more over 0.6 per cent ruling grades in 40 cars than in 100. It then follows, since upward of 40 per cent of the gross ton load may be net revenue load (earning from one-half to one cent per ton mile), that the entire "out-of-pocket" expense of operating a given train may be paid by the revenue from this additional tonnage; which, were it not for the

Until November, 1915, the tonnage system had received very limited trial, being restricted to two or three districts and these of lesser importance from a traffic density standpoint. When the decision was reached to give the tonnage system a thorough and extensive trial it was with some doubts as to the wisdom in so doing on account of the large volume of perishable freight hauled; which class of business cannot be held to fill out tonnage trains. The problem presented was therefore: (1) To establish ratings with enough elasticity to permit ready adjustment to the character of train to be hauled. (2) To organize a system at minimum expense for computing the tonnage of each train. (3) To determine what each engine could pull at schedule speeds. (4) To construct a plan for reporting results which would be of value to officers in supervising the work.

* Received in the contest on "Increasing the Train Load." Other papers on this subject were published in the issues of June 22 and July 6.

This was attacked first by the issue of a circular which specified that the weight of "car and contents in tons" must be shown on every way-bill. All way-bill forms were revised to provide a definite space for this purpose. When this work was well begun, another circular was distributed, instructing yard-masters to record the weights of the individual cars in out-going trains on the yard record and conductors to give similar information for cars of in-coming trains on their switch-lists. With these circulars in force a record of every train in and out of terminals was available and enabled those in charge, through a study of the tonnage actually hauled before any ratings had been fixed, to pick a weight for the first test trains which would be somewhere near the weights finally adopted. This saved considerable time in making the tests.

The officer under whose direction this work was carried out had been much impressed by an article by O. S. Beyer, Jr., entitled "Scientific Train Loading: Tonnage Rating" which appeared in the *Railway Age Gazette* of September 17, 1915, and it was decided to make trials to find out whether an adjusted (for length of train) system would secure greater train loads than a flat system. At the time the tests were begun large numbers of empty cars were being

clearly demonstrated. Table No. 1 covering the operation of through freight trains in the direction of traffic on one district for a period of five months will at least give good ground for argument pro and con. There will be those who maintain that, owing to the large proportion of trains having between 55 and 59 cars, a flat rating of 2170 tons should be fixed for practical operation for all trains. Those opposed will answer that in August 43 per cent of all trains had over 60 cars and that, with a flat rating of 2170 tons in effect, while these 53 trains might have gotten over the road without actually stalling, it is probable that the movement would not have been as satisfactory as under the adjusted system.

If one is willing to admit that the load of 2140 tons would be the only safe one to use for a flat rating for a 60-car train, then the figures shown make an actual saving of seven trains for the adjusted system; which for the 172-mile run in question would mean (on a basis of 50 cents per train mile) an actual economy of \$1204 in the five months' period. The opinion of the writer is that the adjusted system makes for smooth operation, costs no more to work than a flat system and may save real money in the long run.

A word of caution may be added for those who have in mind the introduction of an adjusted rating. In establish-

Atlantic Coast Line Railroad Company

STATEMENT OF TRAINS RUN, CARS HANDLED, AND TONNAGE

Form 787

Norfolk

District,

First

Division, 24 Hours Ending 11:59 P. M.,

Jan. 1st. 1917.

Any unusual train movement should be fully explained, either on face of report or by memorandum attached to report.

Chief Dispatcher

FREIGHT TRAINS

Train No.	Engine No.	Engine Mileage			From	To	Train Mileage	Actual Leaving Time	Actual Arriving Time	Conductor	Engineman	No. of Cars, or Best Cars	FREIGHT CARS HANDLED				TRAIN LOAD IN TONS				
													Loaded	Empty	Total		Length of Train	Total	Average Out and In	Engine Rating	Per Cent of Rating
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
X 407		115			A	B	115	830a	541p	Black	Brown	1	60	32	92		Out 92 In 92	2700 2700	2700	A2750	98
					B	C											Out 70 In 70	2180 2180	2180	A2190	100
					C	D											Out 70 In 50	2180 1780	1980	A2900	68
X 818		115			A	B	115	900a	900p	Smith	Jones	1	80	0	80		Out 80 In 80	3800 3800	3800	A3800	100
					B	C											Out 55 In 55	2790 2790	2790	A2790	100
					C	D											Out 55 In 55	2790 2790	2790	A3550	79
X 400		115			A	B	115	1201a	630a	Hart	Milliken	1	55	18	73		Out 73 In 73	2650 2650	2650	A2650	100
					B	C											Out 55 In 55	2030 2030	2030	B2030	100
					C	D											Out 55 In 55	2030 2030	2030	B2650	77
																	Out In		22950	25310	90.8
																	Out				

B a/c 25 Perishables

run south, which was also the direction of the movement of company coal, so that it was an easy matter to secure test trains; first of loaded coal cars and then of empty box cars: the two limits of all train operation, between which all other trains of however mixed a character must fall.

The tests demonstrated clearly that in most cases more load could be hauled in a short train than in a long one, but it is interesting to note that several instances were found where, on account of the broken character of the country, the engine was able to haul as much in a long empty train as in a short loaded one, the only assignable reason being that, owing to the "saw-tooth" character of the profile, when the engine was hauling the coal train it would have the whole train on the ruling grade at one time, while with 90 or 100 cars some part of the train would still be running down one hill when the engine was nearing the top of the next one. Adjusted ratings with friction allowances of from 4 to 15 tons per car have accordingly been established on 10 out of 12 operating divisions. How much advantage is being obtained from the adjustment feature has not yet been

ing the rating it will probably be advisable, in order to insure the most successful results, to base the rating on the smaller number of heavily loaded cars and then to make the friction allowance slightly higher than 5, say 7 tons per car; because in mixed trains if many loads are on the rear end it may be found that the allowance of five tons is not enough in a long train, as such a train will pull harder than one where the weight is evenly distributed, as would be the case in the fully loaded or empty test trains.

The tests to fix the ratings were simple in character, being conducted by an observer accompanied by the road foreman of engines and the trainmaster. Two or more weeks were spent on each district until it was determined what was the right load for a given class of locomotive. Tests were then run in order to find out how much reduction from the maximum tonnage would be necessary in order to permit trains to make the schedules of certain fast perishable runs. The results of these tests were designated as "A" (slow) and "B" (fast) ratings and as such were put into effect at the conclusion of the tests on each district.

With the ratings established the problem remained of constructing a report which would show sufficient data to enable officers to check the performance of every train readily. The ideal method would be to compute the gross ton miles of each run which would then be compared with the potential gross ton mileage of which the engine is capable. Such statistics, however can be obtained only at considerable expense. To make this unnecessary the form of record shown was devised. In using this system the conductor reports to the dispatcher the number of cars and tons in his train before leaving the yard, which information is recorded on the train sheet in a space provided for the purpose.

The conductor is also required to report the cars and tons which his train takes into and out of the designated intermediate tonnage terminals, which information is also recorded on the train-sheet, so that at the close of the day the record is complete from which Form 787 is prepared. As a result, the performance for the day comes to the office of the general superintendent of transportation with the least possible delay. In that office a stenographer is employed who checks the correctness of ratings, footings, etc., and writes all letters which are sent out having reference to the supervision of the loading. Small adding machines have been placed in the principal yard offices to enable yard clerks to foot the tonnage with speed and accuracy and chief dispatchers have been provided with wide carriage typewriters on which to make up the report. Four days after the close of the month a statement is placed before the general manager, giving the results for the preceding 30-day period on each district or division. Outside of the salary and expenses of the supervising officer the whole cost of the system here described is the salary of the stenographer and the price of the adding machines and typewriters furnished to yards and dispatchers.

with the "B," or fast rating. An examination of the necessities of the service was made and as a result instructions were issued under which "B" trains could only be run between certain fixed hours each day. Consequently while on one district only 58 per cent of all the tonnage hauled was handled in "A" trains in March, in June 71 per cent was so handled, with a resulting saving of 7 trains.

Indirectly, too, it is hoped that these tonnage figures will be of use in increasing the train load, because they have furnished a definite basis on which to make recommendation for grade reduction. For instance, on the run from A through B and C to D it was found necessary on account of one comparatively short ruling grade between B and C to fix the rating over the tonnage district B-C at a very much lower figure than on either of the districts A-B or C-D. The tonnage figures from Form 787 supplied the data to show that there would be sufficient saving made through reduced train service by the removal of the tonnage restriction between B and C to offset the cost of the grade reduction work.

PASSENGER CAR FLOOR INSULATION

A mineral insulating material for use in passenger car floor construction, which somewhat resembles wool felt in appearance and texture, has recently been placed on the market by the Tuco Products Corporation, New York. This material, which is marketed under the trade name of Tucork, is manufactured from a material secured in rock form, which is melted and blown into a mineral wool. This in turn is mixed with a liquid binder, the mixture being poured into containers of proper depth, depending upon the thickness of insulation desired. These containers have a wire mesh bottom through which the liquid is permitted to drain off, the solid material settling on the screen in sheets, the



Tucork Floor Insulation Applied to a Steel Passenger Car

The above is an outline of the method by which one road has very materially increased its trainload. Corollary to it the tonnage statistics on Form 787 have developed some interesting facts which have directly and indirectly been the pointers toward ways and means of increasing the trainload on certain runs or territory. For instance, on one division it was noted from figures on Form 787 that a certain regular train was always underloaded. Circumstances were such that no more tonnage could be obtained, but the report showed that a smaller engine could handle the regular tonnage of this train, so the large engine was transferred to a point where its full power could be utilized. In another case the reports showed that many trains were being run

thickness of which depends upon the depth of the liquid mixture in the tank. After draining, the material is placed in drying ovens where all the moisture is evaporated, the material in its final form being made up of 85 per cent to 90 per cent enclosed air cells.

As it is of mineral structure, the insulation is fireproof and tests have shown that it is practically waterproof. After being submerged in water for a period of one hour, the material shows a gain in weight of only one per cent. The material is light and is manufactured in the form of blocks or sheets which are quickly and easily applied. A cement is furnished with which the blocks are secured to the sheets on which they rest and with which all joints are sealed.

General News Department

The Baltimore & Ohio, like the Pennsylvania, has called to the service of the company considerable numbers of retired employees.

Governor Brumbaugh of Pennsylvania has vetoed the bill, passed several weeks ago by both houses of the Legislature, to suspend, during the war, the excess crew law of that state.

The Fidelity Plate Glass Insurance Company has sued the Lehigh Valley Railroad for \$47,356, the value of glass, insured by that company, broken by the explosions at Black Tom, New York harbor, in July, 1916.

At Gibson, Ind., on Wednesday last, the freight transfer sheds and office buildings of the Indiana Harbor Belt were destroyed by fire, together with 101 freight cars. Estimated loss, \$250,000. Fire believed to have been started by sulphuric acid leaking from a carboy in a car.

The entire staff of the Oahu Railway & Land Company, Honolulu, Hawaiian Islands, has entered the Quartermaster's Reserve Corps of the United States Army for service on the islands, replacing regular army officers and enabling them to be transferred to the front.

W. E. McGarry, special representative of the Terminal Railroad Association of St. Louis on the St. Louis committee of the Commission on Car Service, has been elected chairman to succeed I. L. Burlingame, who has resigned on account of his heavy duties as general manager of the Terminal Railroad.

In the article entitled "Heavier Car Loading Would Eliminate Car Shortage," published in the June 22 issue of the *Railway Age Gazette*, the Patriotic War Number, the caption of the illustration shown on page 1294 misstated the loading of these cars. The pipe shown in this illustration was steel pipe and not wrought-iron pipe as indicated.

The Secretary of the Treasury has submitted to Congress an estimate of over \$5,000,000,000 additional revenue that will be required by the government this year for war purposes, in addition to the money already appropriated. The estimate includes an item of \$450,490,305 for transportation of the army and supplies.

Near North Tonawanda, N. Y., on the morning of July 21, about 1 o'clock, a local freight train of the New York Central was stopped (by application of air brakes) by ten armed men, who opened a car containing aluminum and carried off in automobiles 200 pigs of the metal, said to be worth \$4,800. The stolen property was subsequently recovered and four of the thieves were caught.

In the July 6 issue of the *Railway Age Gazette* it was incorrectly stated that the freight house of the Southern railway at East St. Louis, Ill., and 100 loaded freight cars standing on that company's tracks were destroyed by fire. As a matter of fact, the Southern's warehouse was not destroyed, nor even injured, and the number of loaded cars destroyed by fire was 26 instead of 100. Fifteen empty cars were also destroyed, and two cars were damaged, but the contents of these were not injured.

Secretary Wilson of the Department of Labor has recently given his personal attention to efforts to reach a settlement between the southeastern railroads and their shop employees who are demanding an eight-hour day and increases in wages. After six months of conference between the railroad managers and representatives of the men, relations were broken off and a strike was averted only by an agreement to refer the controversy to conciliators of the Labor Department with an agreement to abide by the decision of Secretary Wilson in case their efforts failed. The secretary has recently attended the conferences, which are expected to last for several days.

The Interstate Commerce Commission has issued a revision of valuation order No. 3, originally effective July 1, 1914. This order provided for a uniform system of reporting investment in

the physical property of every common carrier as a means of keeping valuation inventories up-to-date. The carriers were required to file reports for each fiscal year on June 30 thereof. The revision of the order, which is effective July 1, 1917, was issued to make the necessary adjustment in consequence of the change in the fiscal year. Following the report for June 30, 1917, carriers will be required to make a report for the six months ending December 31, 1917, and on each December 31 thereafter.

C. W. Egan, general claim agent of the Baltimore & Ohio, announces the appointment of a committee, of which he is a member, which has been organized for the purpose of educating railroad employees who may return from the war disabled. This committee was chosen at a recent meeting of heads of railroad claim departments. Its purpose is to teach men in the work of that department to which they may be best adapted and to provide places for them, so far as practicable, after they have acquired some degree of proficiency; and to endeavor to see that all such men receive pay as nearly as possible on the basis that they would have received had they not gone to war. The committee represents 117 American and Canadian railroads.

P. P. Claxton, United States Commissioner of Education, under the authorization of the Secretary of War, has advised the presidents of technical schools and colleges that students of such schools who are within the age limit of the selective draft should be treated in the same manner as workers in the industries which are devoted to the manufacture of war materials. Under this ruling exemption may properly be urged for students who give promise of special aptitude for the technical and scientific professions until they have finished their courses. As the successful prosecution of war depends in a large measure on the services of technical experts, it is important that the supply of men who have had advanced technical training should not be cut off more than is necessary.

According to a recent statement by W. R. Scott, vice-president and general manager of the Southern Pacific, this road will be forced to discontinue some of its trains within a short time unless the federal government opens up oil fields in the west which have been reserved on the theory that a navy to be built five years from now may need this supply. It is stated that the consumption of crude oil in California is now 60,000 gallons a day above production and that the Southern Pacific is now using from 9,000 to 12,000 more barrels a day than it can buy or produce. The Southern Pacific asks that it be permitted to supply its fuel needs from those of its lands which are under the government ban, to prevent the serious results which would follow a paralysis of a consideration portion of its train service at a time when traffic is exceptionally heavy on account of the war needs of the country.

Railroads Increasing Nation's Food Supply

Fairfax Harrison, chairman of the Railroads' War Board, has authorized a statement in which he says that the railroads of the West and Middle West are leasing at nominal rental for grazing and agricultural purposes millions of acres of lands. Virtually all of the land owned by these roads, which is not being used for operating purposes, is now under cultivation or being used by live-stock owners for cattle grazing.

And also, as heretofore noted, a number of the railroads are offering garden plots, rent free, to families along their right of way. The Federal government has been offered 200,000 acres of "cut-over" land in Wisconsin by the Minneapolis, St. Paul & Sault Ste. Marie.

Among the western roads that are leasing all suitable lands in their possession for agricultural and grazing purposes are the Northern Pacific, the Union Pacific, the Southern Pacific, the Great Northern, the Oregon Short Line, the Chicago, Milwaukee & St. Paul, the Northwestern Pacific, and the Atchison,

Topeka & Santa Fe. The Santa Fe has leased every available acre that it owns.

Other roads leasing their idle lands are the St. Louis & San Francisco, the Pere Marquette, the Missouri Pacific, the Missouri, Kansas & Texas, the Chicago, Burlington & Quincy, and the Chicago, Rock Island & Pacific.

A Million Rations Lost

J. H. Elliott, general manager of the Texas & Pacific, has issued a public plea for the enactment of laws in Texas and Louisiana to prohibit live stock from running at large. Mr. Elliott says that his road killed enough live stock in the last fiscal year to provide sufficient meat to feed an army of 100,000 men ten days. The record shows 1,027 cattle, 552 hogs and sheep, and 165 horses and mules killed; an absolute waste. Many of the cattle were milch cows, the loss of which entailed a corresponding loss of butter and milk. Our armies are clamoring for horses and mules, and thousands and thousands of them are required. The road has spent large sums of money in building and repairing fences, and has educated its employees to do their utmost to prevent the killing of stock; but the waste cannot be stopped without the hearty co-operation of the public and the owners of stock. Many of the animals are killed inside station limits, where railroads can not build fences.

Canadian Pacific Men Win Honors in War

A Canadian Pacific bulletin recently issued contains a partial list of officers and employees of the company in military service in Europe to whom King George has awarded decorations and medals for bravery, gallantry and devotion to duty in the field. C. W. P. Ramsey, formerly engineer of construction at Montreal and now lieutenant-colonel in the Canadian army, has been made a Companion of the Order of St. Michael and St. George. Distinguished service orders were granted to G. S. Cantlie, formerly general superintendent of car service at Montreal, Ont., and now lieutenant-colonel; F. A. Gascoigne, formerly superintendent of car service at Montreal and now a lieutenant-colonel, and J. A. Hesketh, formerly assistant engineer at Winnipeg, Man., and now a major. Military crosses were given to thirteen Canadian Pacific men, distinguished conduct medals to ten, military medals to thirty-eight and a meritorious medal to one.

Canada's Railway Plans

The intentions of the government in connection with the proposed nationalization of railways were the subject of a report presented in parliament August 1 by Sir Thomas White, finance minister. He said it was proposed to acquire the entire Canadian Northern system of over 9,000 miles. This system has a common share capital of \$100,000,000, of which the government already owns \$60,000,000. A board of arbitration will be appointed to determine the value of the property.

The government contemplates the eventual acquisition of the Grand Trunk Pacific, but as to this no definite plans were presented. In the meantime, however, the government proposes to assist the G. T. P. with an advance of \$750,000 to be secured by mortgage, for which the Grand Trunk, as well as the Grand Trunk Pacific, would be liable.

War Industries Board

Robert S. Lovett, chairman of the executive committee of the Union Pacific, has been appointed a member of the new War Industries Board, created by the Council of National Defense, which, in addition to other duties, will assume those formerly discharged by the General Munitions Board. It will act as a clearing house for the war industry needs of the government, determine the most effective ways of meeting them and the best means and methods of increasing production, the sequence and relative urgency of the needs of the different government services, consider price factors, and, in the first instance, the industrial and labor aspects of problems involved, and the general questions affecting the purchase of commodities. It will work under the direction and control of the Council of National Defense, and be responsible through it, to the President. The members are: F. A. Scott, chairman; Lieutenant-Colonel Palmer E. Pierce, representing the army; Rear Admiral Frank

E. Fletcher, representing the navy; Hugh Frayne, B. M. Baruch, Robert S. Brookings, and Mr. Lovett, who will give his attention particularly to matters of priority. The various subordinate and co-operative committee of the Advisory Commission of the Council of National Defense, will continue their activities, and those whose work is related to the duties of the War Industries Board will co-operate with it.

Women on the Pennsylvania

Women and girls employed on the Pennsylvania Railroad now number more than 2,000 in the operating department alone; and the greater part of these have been employed within the last two months. There are 11 signal women, six student signal women, four women locomotive despatchers, 19 station cleaners, 206 car cleaners, two draughtswomen, 104 messengers, 20 student messengers, 10 extra messengers, 23 station agents, one ticket seller, three bureau of information attendants, one pump attendant, 42 block operators, two machine hands, five street watchwomen, five upholsterers, one parcel room attendant, 12 drawbridge tenders and 18 store attendants, a total of 555; and in the lines of work more customarily followed by women there are 433 telephone operators, 84 matrons, 29 janitresses, two stewardesses, 78 stenographers, 1,102 clerks and one cook. The aggregate in all kinds of work is 2,360.

Last May, when the Pennsylvania first proposed to employ women on a large scale, the only women in the service were a few station agents, telegraph and telephone operators, etc., and a limited number of women clerks who had been experimentally employed in one of the large departments in the general office.

Personal Injury Fakir Trapped

One cold day last spring a man on crutches stumbled into the office of Oscar D. Aeppli, general claim adjuster of the Chicago, Milwaukee & St. Paul at Chicago. He stated that he had slipped on a banana peel on a step while getting off a St. Paul train and had injured his spine as a result of the fall. Mr. Aeppli sent him to a hospital for examination. While his case was something of a puzzle to medical men, he did not flinch when they applied an electrical test and stuck pins into his feet. Subsequently, Mr. Aeppli, who scented that something was wrong, had the man shadowed and found that while he painfully picked his way to the street car from the St. Paul offices, as soon as he got inside, he put his crutches under his arm and strolled unconcernedly to a seat forward. Upon investigation it was discovered that he had successfully prosecuted similar claims against three other roads under three different names. He later wrote the St. Paul a threatening letter from Minneapolis under the name of a fictitious attorney, but without success. On May 3, he presented a claim to the Minneapolis & St. Louis for injuries alleged to have been received at Mason City, Ia. That road settled with him, but watched his subsequent activities and discovered him walking out of an alley without his crutches. He was thereupon arrested and is in jail under \$2,500 bonds. The St. Paul has also taken up the matter with federal authorities, who have issued a warrant charging him with attempting to obtain money under false pretenses and for using the mails for fraudulent purposes. In commenting on the case, Mr. Aeppli said, "We shall prosecute this man. Our department endeavors to be fair with those who come to it, and we hope to give justice to this imposter."

Informal Railroad Operation

Railroad operations on the New Jersey & Pennsylvania Railroad have been resumed, after a bad wreck that blocked the road for six hours. The New Jersey and Pennsylvania [a line from Morristown, N. J., south, 25 miles, which suspended business four years ago for lack of enough income to pay wages and fuel] was bought at auction a few weeks ago by Frank B. Allen, who has since been making a good profit on the transaction by tearing up the rails of all sidings, and selling them to the Allies for use in France.

Mr. Allen, who is president of the road, was directing operations yesterday from the front seat of his automobile when an accident at one blow disabled 33 per cent of the rolling stock of the railroad. President Allen's motor car is fitted with flanged wheels, and hauls the two hand-cars, which constitute

the company's active "equipment." Suddenly the rear car jumped the track and broke a spring. The train crew had to lug the wrecked car to the blacksmith shop at Brookside station, near where the wreck occurred. The blacksmith and his helper worked over the broken spring for three hours before the car was repaired and the train crew could lug it back to the rails.

Just before the big wreck the train had arrived at Brookside station in response to a rumor that from an old siding overgrown with bushes a profitable lot of rails could be taken. Old rails are worth \$65 to \$80 a ton, depending on whether they are composed of rust or of iron.

About 100 tons of rails have been taken up from the roadbed of this line. The rails weigh about 46 pounds to the yard. The removal of the rails does not mean that the company has expired. There is still a single track between termini, with a few turnouts. Two locomotives are being repaired at Paterson. Meantime President Allen has fitted his motor car with flanged wheels for railroad traction purposes. At night the flanged wheels are taken off, pneumatic rubber-tired automobile wheels put on, and President Allen rides home over the macadam.—*New York Evening Post.*

How Increased Prices Affect the Railroads and the Public

In a recent public statement R. J. Clancy, assistant to the general manager of the Southern Pacific, San Francisco, showed how much more oppressive increased prices are on the railroads than on the general public. He said: "The increase in the cost of a Mallet locomotive over what it was two years ago would buy a 160-acre farm at \$125 an acre, build a \$5,000 residence on it, provide for \$2,500 worth of implements and farm machinery, 25 dairy cows at \$75 each, \$700 for teams and wagons, a \$1,500 automobile, and still leave \$150 for incidentals—and this represents the increase in the cost of only one locomotive. Complaint is general among the people regarding the increased cost of living, resulting from increases in the cost of a dozen or so necessities of life, such as bread, butter, meat, potatoes, etc., but how about the railroad menu? The railroad consumes material, just as an individual consumes food, except that instead of a dozen articles, the railroad menu is 85 times that many, and its burdens, therefore, are in relatively greater proportion.

"Where the individual consumes pounds of bread, butter, meat and potatoes which have advanced 50 per cent, the railroad consumes tons of copper, steel, iron and kindred products which have advanced from 100 to 500 per cent. An individual may economize by substituting a cheaper article, such as eggs for meat and rice for potatoes, etc., and in this way neutralize the effect of increased prices, but a railroad is subjected to hard and fast standards which permit of little or no substitution, and cannot, like the individual, economize by substituting a cheaper article. Wage increases in other industries have been added into the cost of material and supplies to the railroad, and this, combined with wage increases to railway employees, increased taxes and a very large increase in the cost of fuel oil, produces an aggregate burden of ominous proportions."

Railway Revenues and Expenses for May, 1917

The net operating income of the railways of the United States for May, 1917, was more than May, 1916, by \$4 per mile, or 1.1 per cent, according to the monthly bulletin of the Bureau of Railway Economics.

Total operating revenues, \$345,773,079, exceeded those for May, 1916, by \$44,727,367. Operating expenses, \$238,682,879, were greater by \$41,272,388. Net operating revenue, \$107,090,200, increased \$3,454,979. Taxes, \$14,959,535, increased by \$2,333,548. Net operating income was \$92,079,548, which is an increase of \$1,147,753.

If spread over the mileage represented, operating revenues averaged \$1,498 per mile, an increase over May, 1916, of 14.7 per cent; operating expenses per mile, \$1,034, were greater by 20.7 per cent; net operating revenue per mile, \$464, shows an increase of 3.1 per cent; while net operating income per mile, \$399, increased 1.1 per cent. Taxes per mile rose 18.3 per cent.

This summary covers 230,905 miles of operated line, or about 90 per cent of the steam railway mileage of the United States.

For the eastern railways, operating revenues per mile were greater than those for May, 1916, by 11.4 per cent; operating expenses rose 22.2 per cent; net operating revenue decreased 9.6

REVENUES AND EXPENSES OF STEAM ROADS—MAY, 1917

Compiled from monthly returns of the railways to the Interstate Commerce Commission and covering roads of Class I, i. e., roads with annual operating revenues above \$1,000,000.

Account	UNITED STATES			EASTERN DISTRICT			SOUTHERN DISTRICT			WESTERN DISTRICT		
	Per mile of line			Per mile of line			Per mile of line			Per mile of line		
	Amount, 1917	1916	Increase over 1916 Per cent	Amount, 1917	1916	Increase over 1916 Per cent	Amount, 1917	1916	Increase over 1916 Per cent	Amount, 1917	1916	Increase over 1916 Per cent
Total operating revenues.....	\$345,773,079	\$1,498	14.7	\$156,277,135	\$2,639	11.4	\$50,326,574	\$1,178	15.5	\$139,169,370	\$1,079	18.4
Freight	252,039,281	1,092	15.5	112,409,787	1,898	11.9	38,019,452	890	15.6	101,618,042	788	19.7
Passenger	61,216,764	265	12.5	27,081,510	457	8.3	8,600,621	201	16.1	25,534,633	198	16.2
Mail	4,990,546	22	d 0.3	1,960,703	33	5.8	748,710	18	15.9	2,281,133	17	d 9.0
Express	8,886,000	38	19.1	4,322,396	73	62	1,211,087	29	9.6	3,352,517	26	21
All other	18,640,488	81	71	10,502,739	178	158	1,746,704	40	35	6,391,045	50	43
Total operating expenses.....	238,682,879	1,034	20.7	113,119,153	1,910	22.2	34,609,017	810	22.1	90,954,709	705	18.5
Maintenance of way and structures...	41,059,094	178	5.9	16,804,842	284	5.6	5,751,263	135	12.7	18,502,989	144	6.4
Maintenance of equipment.....	57,893,973	251	21.7	27,962,335	472	16.7	9,628,346	225	18.8	20,303,292	157	12.2
Traffic	5,452,984	24	3.0	2,048,689	35	2.6	1,036,434	24	23	2,367,861	18	1.8
Transportation	124,187,264	538	41.1	61,597,405	1,040	31.8	16,881,185	395	29.5	45,708,674	355	28.3
General	7,939,421	34	30.7	3,490,035	59	15.9	1,182,266	28	26	3,267,120	25	22
All other	2,150,143	9	7	1,215,847	20	25.5	129,523	3	4	804,773	6	42.5
Net operating revenue.....	107,090,200	464	3.1	43,157,982	729	d 9.6	15,717,557	368	35.6	48,214,661	374	18.2
Taxes	14,959,535	65	18.3	5,968,067	101	86	2,435,090	57	41	6,556,378	51	45
Uncollectible revenues	51,117	*	16,121	*	9,973	*	1	25,023	*
Operating income	92,079,548	399	1.1	37,173,794	628	d 12.8	13,272,494	311	d 1.1	41,633,260	323	19.0
Operating ratio—per cent—												
1917		69.0			72.4			68.8			65.4	
1916		65.6			66.0			65.1			65.3	
Average mileage represented—												
1917	230,905			59,212				42,738			128,955	
1916	230,491			59,228				42,540			128,723	

d Decrease. * Less than one dollar.

per cent; taxes increased 17.6 per cent. Operating income per mile decreased 12.8 per cent.

For the railways of the southern district, operating revenues per mile exceeded those for May, 1916, by 15.5 per cent; operating expenses rose 22.1 per cent; net operating revenue increased 3.2 per cent; taxes increased 36.7 per cent. Operating income per mile decreased 1.1 per cent.

For the western railways, operating revenues per mile exceeded those for May, 1916, by 18.4 per cent; operating expenses rose 18.5 per cent; net operating revenue increased 18.2 per cent; taxes increased 13.3 per cent. Operating income per mile increased 19.0 per cent.

The five months of the current calendar year, compared with the corresponding period of the preceding year, show changes per mile of line as follows: Operating revenues increased 10.5 per cent, operating expenses increased 17.3 per cent, net operating revenue decreased 3.9 per cent, taxes increased 15.3 per cent, while operating income decreased 7.1 per cent.

Operating income per mile decreased 24.3 per cent in the east, increased 2.7 per cent in the south, and increased 8.9 per cent in the west.

May net operating income per mile was 1.1 per cent greater in 1917 than in 1916, 53.9 per cent greater than in 1915, 104.1 per cent greater than in 1914, and 46.1 per cent greater than in 1913.

Local Committees of Commission on Car Service

As previously announced in the *Railway Age Gazette*, local committees of railroad officers have been organized at various points in the country to assist the Commission on Car Service in expediting the movement of equipment. The names of the cities where committees are located and the chairmen in charge are as follows:

Atlanta, Ga., E. W. Sandwich, superintendent of car service, Atlanta & West Point.
Birmingham, Ala., H. E. Hutchens, inspector of passenger transportation of the Southern Railway.
Boston, Mass., S. E. Miller, acting superintendent of transportation, Boston & Maine.
Buffalo, N. Y., D. B. Fleming, superintendent, New York Central.
Chicago, Ill., H. E. Byram, vice-president, Chicago, Burlington & Quincy.
Cleveland, Ohio, R. K. Rochester, superintendent, Pennsylvania Lines West.
Cincinnati, Ohio, Geo. B. Skeldon, Cleveland, Cincinnati, Chicago & St. Louis.
Columbus, Ohio, I. W. Geer, general superintendent Pennsylvania Lines West.
Detroit, Mich., Henry Shearer, general superintendent, Michigan Central.
Galveston, Tex., J. H. Keefe, assistant general manager, Gulf, Colorado & Santa Fe.
Indianapolis, Ind., J. W. Coneys, superintendent, Pennsylvania Lines West.
Kansas City, Mo., O. C. Hill, superintendent, Kansas City Terminal.
Louisville, Ky., W. S. Campbell, manager and chief engineer, Kentucky & Indiana Terminal.
Memphis, Tenn., A. H. Egan, general superintendent, Illinois Central.
Minneapolis, Minn., G. T. Slade, vice-president, Northern Pacific.
Norfolk, Va., C. P. Dugan, superintendent of transportation, Norfolk Southern.
New York, N. Y., F. E. Williamson, superintendent, New York Central.
New Orleans, La., L. A. Downs, general superintendent, Illinois Central.
Philadelphia, Pa., Elisha Lee, general manager, Pennsylvania Railroad.
Pittsburgh, Pa., D. F. Crawford, general manager, Pennsylvania Lines.
Peoria, Ill., R. H. Johnson, general manager, Peoria & Pekin Union.
Richmond, Va., W. D. Duke, general superintendent, Richmond, F. & P.
St. Louis, Mo., I. L. Burlingame, general manager, Terminal Railroad Association.
Seattle, Wash., J. H. O'Neill, general superintendent, Great Northern.
San Francisco, Cal., K. M. Nicoles, superintendent of transportation and superintendent of telegraph, Western Pacific.
Toledo, Ohio, A. B. Newell, president, Toledo Terminal.
Wheeling, W. Va., U. B. Williams, general agent, Baltimore & Ohio.

Railroad Efficiency in Serving Army Camps

In a statement given out on July 25, R. H. Aishton, chairman of the Central Department Committee of the Railroads' War Board, shows how efficiently the railroads are serving the army camps in the 15 states in the Central War Department. There are six cantonment sites, four aviation sites and 21 mobilization and training camps in this district, and at every one of these places, most of which were established after the war began, there has been a strenuous demand for large quantities of a wide variety of material and supplies. In order to reach some of the new military sites it was necessary for the railroads to build miles of track before they could deliver material for the buildings planned. Nevertheless, the records show that up to July 20, 2,298 carloads of materials and supplies had been delivered to the cantonment sites, 3,092 carloads at the aviation sites, and 900 at the mobilization and training camps, or a total of 6,300 carloads. Among the sites where new track has been necessary are Rockford, Ill., where a length of 4.5 miles of track

was built and 2 miles more are being built; Battle Creek, Mich., 1 mile built; Rantoul, Ill., ½ mile built. To ascertain exactly how the railroads were meeting the demands of the war department at these sites, Mr. Aishton sent specific inquiries to each of the military sites, and in every case received the assurance that no complaint could be made as to the furnishing of cars or the moving of material.

Railway and Engineering Work in France

The value of railroad materials and rolling stock alone, now being purchased to provide in advance for the needs of the American army abroad, is about five times that of all purchases made annually in this country for the Panama Canal during the last four or five years, according to a statement authorized by the chief of engineers of the army.

American engineers must undertake large operations in the construction and repair of bridges in France. They must repair and maintain the roads and highways over which supplies will be brought up to the battle line. Much of the latter work will be done within range of the enemy's guns.

Our engineers will equip the wharves and piers in France utilized by American forces with the terminal facilities required by our armies. The lumber for this work will be cut from European forests by regiments of American foresters. This method will save burdening our ships with lumber from the United States. One regiment of foresters is being organized, and several more will be raised. They will carry with them complete lumbermen's outfits, including sawmill equipment.

Material for extensive standard gage and narrow gage railroads will be sent to Europe, to enable the engineers to carry out their task. The lines to be built will both transport our troops to the front and handle all transportation behind the firing line. The lines running up to the front will remove wounded and salvage gathered from the field. Lines of this type are broad-gage, feeding numerous narrow-gage spurs which radiate from the main line and accommodate supply trains, often hauled by gasoline engines.

The Engineers' Corps will carry its own rolling stock to the theater of war. This, in itself, will be a gigantic operation.

The engineers must construct at harbors in the United States wharves, piers and storehouses of sufficient capacity to handle all materials and supplies to be shipped to France. An efficiency system has been worked out to provide against delay in loading and unloading which might interfere in any way with the maximum movement of the shipping available. Ample and up-to-date terminal facilities must be provided in ports on both sides of the Atlantic. Our shortage of ships on the water makes efficiency in docks doubly important, and the speed of the transport service naturally depends upon the number of tons actually moving all the time, and not upon the amount of tonnage available.

U. S. Chamber of Commerce Urges Development of Storage Facilities

A committee of the Chamber of Commerce of the United States has issued a bulletin calling attention to ways in which shippers may promote the most efficient use of railway facilities during the war, and urging the importance of developing storage facilities at points of production to avoid congestion in manufacture, of developing such facilities for finished goods near the point of consumption or shipment abroad in order to minimize the need for railroad cars, and of creating conditions under which railroad cars will not be used for storage purposes. The bulletin describes some of the work of the Storage Committee of the Council of National Defense along these lines.

"Unless adequate preparations are made to store materials or goods on the arrival of railroad cars," the bulletin says, "these cars themselves must of necessity be used for storage purposes. Ocean transportation at best is irregular, and today the conditions are uncertain, to say the least. Often in the past two years shipments for France and England have so accumulated at New York and other ports that many hundreds of cars for months have not only blocked terminal facilities, but side tracks all the way to Buffalo and Pittsburgh. The work of the Storage Committee is directed toward avoiding this condition on the enormous shipments to be made by our government."

According to the National Chamber bulletin, prepared under

the direction of Waddill Catchings, of New York, baling or compressing products for shipment is developing great possibilities for saving transportation space. Already socks and blankets are being baled and satisfactory progress is being made toward baling uniforms, shoes and even prunes. Bales are covered with a waterproof material, which is later used for sand bags at the front. One advantage of baling is that use can be made of flat cars in shipping merchandise.

"The railroads are doing more than ever before, but the burden is overwhelming, for business in this country is on a scale never before approached," according to the National Chamber bulletin. "On the one hand, the supply of new equipment is restricted by material and labor conditions, and on the other hand, not only is existing equipment being given to our Allies, but the output of many of our car and locomotive plants is given to them because their need is greater than ours. Therefore, with little opportunity of securing new equipment and having to rely upon what they have, using this to the utmost until it wears out, the railroads are called upon for increasingly great efforts as our business everywhere expands.

"The utmost which the railroads are able to do is not equal to the needs of the government and of the great business being done today. In fact, it is said, facilities of transportation are very likely to be the limiting factor on general business unless there is close co-operation between business men and the railroads. Business men will see, therefore, how deep is their concern that no avoidable demand be made upon the railroads either for transportation or for the use of railroad cars for storage purposes.

"The request is made therefore of all member associations of the Chamber of Commerce of the United States interested in this problem to appoint competent and energetic committees to act in this connection, and to send the names of the members of such committees to the committee of which Mr. Catchings is the chairman, and to the Storage Committee of the Council of National Defense at Washington.

"Furthermore, steps should be taken to eliminate less than carload shipment by combining such shipments for many manufacturers in a locality, and by establishing centers for distributing, by truck, shipments received in car lots and for receiving goods in a similar manner for outbound movement in car lots. Effort should also be made to bring about the loading of railroad cars to full car capacity. Where such loading is prevented by trade customs, which establish the unit of an order at less than maximum car capacity, steps should be taken to change these customs so that the use of cars will not be unduly restricted."

Bridge and Building Convention

At a meeting of the executive committee of the American Railway Bridge and Building Association, held in Chicago on July 25, it was decided to transfer the next convention from St. Paul, the place originally selected, to Chicago, to enable more men to attend the meeting with a minimum loss of time. It was also decided to hold a three-day convention and to revise the program radically to enable a large part of the time to be given to the consideration of problems which have assumed primary importance for bridge and building men during the last few months. Special attention will be given to discussions of labor and of materials.

National Association of Purchasing Agents

The annual congress of purchasing agents, under the auspices of the national association, will be held at Pittsburgh, October 9, 10 and 11. The program includes business sessions for the mornings and visitation and inspection of industrial works during the afternoons.

The National Association of Purchasing Agents is composed of the membership of local branches with a present total membership, including all active local associations, of more than 1,000.

The object of the association is to bring together on common ground purchasing agents generally, to gather and to disseminate information and knowledge of benefit to the profession, to foster and promote friendly relations between members, to secure more uniform purchasing routine method and the standardization of specifications and classifications and dissemination

of data relating to the general subject of buying, the improvement of existing methods for the diffusion of information, and to secure generally more definite as well as broader information on topics and problems of importance.

The president of the association is E. L. McGrew, of the Standard Underground Cable Company. The headquarters are at 600 Westinghouse building, Pittsburgh.

MEETINGS AND CONVENTIONS

The following list gives names of secretaries, dates of next or regular meetings and places of meetings:

- AIR BRAKE ASSOCIATION.—F. M. Nellis, Room 3014, 165 Broadway, New York City.
- AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—F. A. Pontious, 455 Grand Central Station, Chicago. Next meeting, July 18, 1917, Asheville, N. C.
- AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.—H. C. Boardman, D. L. & W., Hoboken, N. J. Next convention, October, 1917, San Francisco, Cal.
- AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, Illinois Central, Chicago, Ill.
- AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Next meeting, October 16-17, St. Louis.
- AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—E. H. Harman, Room 101, Union Station, St. Louis, Mo. Annual meeting to have been held August 8-10 indefinitely postponed.
- AMERICAN ELECTRIC RAILWAY ASSOCIATION.—E. B. Burritt, 8 W. 40th St., New York. Convention for 1917 abandoned.
- AMERICAN ELECTRIC RAILWAY MANUFACTURERS' ASSOCIATION.—Fred C. J. Dell, 165 Broadway, New York.
- AMERICAN RAILROAD MASTER TINNERS', COPPERSMITHS' AND PIPEFITTERS' ASSOCIATION.—W. E. Jones, C. & N. W., 3814 Fulton St., Chicago. Convention for 1917 postponed.
- AMERICAN RAILWAY ASSOCIATION.—J. E. Fairbanks, general secretary, 75 Church St., New York.
- AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago. Next convention, October 16-18, 1917, St. Paul, Minn.
- AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, 900 S. Michigan Ave., Chicago.
- AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—J. W. Taylor, 1112 Karpen Bldg., Chicago.
- AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—Owen D. Kinsey, Illinois Central, Chicago. Next convention, to have been held August 30-September 1, Hotel Sherman, Chicago, postponed for one year.
- AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.
- AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 220 W. 57th St., New York.
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.
- AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, Supt. Timber Preservation, B. & O., Mt. Royal Sta., Baltimore, Md. Next convention, January, 1918, Chicago.
- ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—E. R. Woodson, Rooms 1116-8 Woodward Bldg., Washington, D. C.
- ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS.—George W. Lyndon, 1214 McCormick Bldg., Chicago. Semi-annual meeting with Master Car Builders' Association.
- ASSOCIATION OF RAILWAY CLAIM AGENTS.—Willis H. Failing, Terminal Station, Central of New Jersey, Jersey City, N. J.
- ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Sta., Chicago. Semi-annual and annual convention postponed indefinitely.
- ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—W. L. Connelly, Superintendent of Telegraph, Indiana Harbor Belt, Gibson, Ind. Next annual meeting, September 11-13, 1917, Washington, D. C.
- ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 75 Church St., New York.
- BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—Tom Lehon, The Lehon Company, Chicago. Meetings with American Railway Bridge and Building Association.
- CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.
- CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.
- CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawlor Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Hotel La Salle, Chicago.
- CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual dinner, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.
- CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—W. R. McMunn, New York Central, Albany, N. Y. Next convention, September, 1917, St. Louis.
- ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 568 Union Arcade Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh, Pa.
- FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Traffic Manager, R. F. & P., Richmond, Va.
- GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, C. H. & D., Lima, Ohio. Next annual meeting, to have been held August 21-23, 1917, Chicago, postponed for one year.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—J. G. Crawford, C. B. & Q. R. R., 702 E. 51st St., Chicago. Next convention, May, 1918, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1126 W. Broadway, Winona, Minn. Annual meeting, to have been held September 4-7, 1917, Hotel Sherman, Chicago, indefinitely postponed.

INVESTMENT BANKERS' ASSOCIATION OF AMERICA.—Frederick R. Fenton, 11 W. Monroe St., Chicago. Annual convention, October 1-3, 1917, Baltimore, Md.

MAINTENANCE OF WAY AND MASTER PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—F. W. Hager, Fort Worth & Denver City, Fort Worth, Tex. Next convention, October 16-18, 1917, Cleveland, Ohio.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—A. P. Dane, B. & M., Reading, Mass. Next annual meeting, September 11, 1917, Chicago.

MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, 1112 Karpen Bldg., Chicago.

NATIONAL ASSOCIATION OF RAILWAY COMMISSIONERS.—Jas. B. Walker, 120 Broadway, New York City. Next annual convention, October 16, 1917, Washington, D. C.

NATIONAL RAILWAY APPLIANCE ASSOCIATION.—C. W. Kelly, 349 Peoples Gas Bldg., Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meeting, 2d Tuesday in month, except June, July, August and September, Boston.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meeting, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—Geo. A. J. Hochgrebe, 623 Brisbane Bldg., Buffalo, N. Y. Meetings 3d Wednesday in month, New York Telephone Bldg., Buffalo, N. Y.

PACIFIC RAILWAY CLUB.—W. S. Wollner, Assistant to Chief Engineer, Northwestern Pacific R. R., San Francisco, Cal.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—F. C. Stewart, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.

RAILROAD CLUB OF KANSAS CITY.—Claude Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Saturday in month, Kansas City.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 30 Church St., New York.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Pittsburgh Commercial Club Rooms, Colonial-Annex Hotel, Pittsburgh.

RAILWAY DEVELOPMENT ASSOCIATION.—D. C. Welty, Commissioner of Agriculture, St. L., Iron Mt. & So., 1047 Railway Exchange Bldg., St. Louis. Next annual convention, May, 1918, Houston, Tex.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. Scribner, 1063 Monadnock Block, Chicago. Meetings with Association of Railway Electrical Engineers.

RAILWAY FIRE PROTECTION ASSOCIATION.—C. B. Edwards, Office of the President's Assistant, Seaboard Air Line, Norfolk, Va. Next meeting, October 2-4, 1917, St. Louis, Mo.

RAILWAY REAL ESTATE ASSOCIATION.—R. H. Morrison, Assistant Engineer, C. & O., Richmond, Va. Next convention, October, 1917, Duluth, Minn.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Myers Bldg., Bethlehem, Pa. Next meeting, June, 1917, Hotel McAlpin, N. Y. Next annual convention, September, 1917, Atlantic City, N. J.

RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, N. Y. C. R. R., Box C, Collinwood, Ohio.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 2136 Oliver Bldg., Pittsburgh, Pa. Meetings with Master Car Builders' and Master Mechanics' Association.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 50 Church St., New York. Meetings with Association of Railway Telegraph Superintendents.

RICHMOND RAILROAD CLUB.—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—P. J. McAndrews, C. & N. W., Sterling, Ill. Next annual convention, September 18-21, 1917, Hotel Auditorium, Chicago.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

SALT LAKE TRANSPORTATION CLUB.—R. E. Rowland, David Keith Bldg., Salt Lake City, Utah. Regular meetings, 1st Saturday of each month, Salt Lake City.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, 3868 Park Ave., New York. Meetings with annual convention Railway Signal Association.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—L. W. Cox, N. & W., Philadelphia, Pa.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. R. R., Atlanta, Ga.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 a. m., Piedmont Hotel, Atlanta.

TOLEDO TRANSPORTATION CLUB.—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Booddy House, Toledo.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y. Meetings with Roadmasters' and Maintenance of Way Association.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7122 Stewart Ave., Chicago.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. R. R., Cleveland, Ohio. Next convention, September, 1917, Chicago.

WESTERN ASSOCIATION OF SHORT LINE RAILROADS.—Clarence M. Oddie, Mills Bldg., San Francisco.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Monday in month, except June, July and August, Hotel Sherman, Chicago.

Traffic News

The Secretary of Commerce has appointed Walter Parker, assistant for Inland Water Transportation. Mr. Parker is general manager of the New Orleans Association of Commerce.

The Kansas Public Utilities Commission rendered a decision on July 26, denying the application of the railroads for an increase in intrastate passenger fares from two to three cents a mile.

The Nebraska State Railway Commission recently granted the railroads of that state a postponement of the date of hearing their application for a 15 per cent increase in freight rates from July 16 to September 10.

An application by the Texas & Pacific to the Railroad Commission of Louisiana for permission to discontinue several local trains, was denied in a decision rendered on July 19, on the ground that local passenger train service in Louisiana is already at the minimum.

The railroads centering in Youngstown, Ohio, in accordance with an agreement with the Chamber of Commerce of that city, have arranged to issue daily bulletins showing embargoes in force on less than carload freight; the purpose being to show, day by day, all changes of importance which may be of interest to Youngstown shippers.

The Baltimore & Ohio is circulating among shippers a number of photographs of cars loaded below their carrying capacity. A statement announcing this policy says that one large shipper on the B. & O. lines could have increased the market output of his plants in one month by 100 carloads if sufficient care had been given to loading cars to their full capacity.

The Santa Fe Lines have arranged to finance the purchase of seed wheat for the coming season for farmers who have located on new lines of the system in southwestern Kansas, northwestern Texas and western Oklahoma. The railroad has deposited approximately \$250,000 with bankers in this region, who will lend the money to the farmers on notes due after the 1918 harvest.

Representatives of railroads and industrial organizations discussed methods of increasing transportation efficiency at a meeting held under the auspices of the Traffic Club of the Chamber of Commerce at Cincinnati, Ohio, on July 20. Hugh M. Freer, chairman of the Traffic Club, was toastmaster, and the speakers included J. A. Morris, superintendent of terminals of the Cleveland, Cincinnati, Chicago & St. Louis, Cincinnati; W. C. Cooder, secretary of the Cincinnati committee of the Commission on Car Service; C. B. Stafford, manager of the traffic department of the Louisville (Ky.) Board of Trade, and Guy M. Freer, president of the National Industrial Traffic League. The latter stated that the transportation situation would be very critical next winter, and that it was the duty of the shippers and consignees to assist the railroads in reducing the shortage of cars by heavy loading and quick unloading.

"Hooverian Principles"

The Baltimore & Ohio announces that "Hooverian principles" of food conservation are to be adopted in its dining car menus, to enable the traveling public to economize as advised by the food administration. The menus have been arranged so as to suggest a liberal use of fish and vegetables, as well as the purchase of meals in quantities sufficient to appease hunger, and the substitution of corn bread for white bread. Unless especially ordered for dietary reasons white bread will not be offered at the morning or mid-day meals. The Baltimore & Ohio will continue to serve cream and butter at meals without extra charge, although it may be found necessary to adopt these suggestions later. Fruits and sweet entrees which do not require the use of pastry will also be featured. The size of portions will remain the same. All such articles as veal, squabs and other unmaturing foods have been discontinued. The service of table d'hôte meals will also be discontinued.

Commission and Court News

INTERSTATE COMMERCE COMMISSION

The Interstate Commerce Commission has suspended from August 1 until November 29 the operation of a Southern Pacific Company-Atlantic Steamship Lines tariff providing for increased rates on cotton and cotton products from New Orleans to New York.

Southern Pacific Company's Ownership of Atlantic Steamship Lines

Opinion by Commissioner Meyer:

The petitioner, having corrected the objectionable practices enumerated in the commission's original report, it finds that the existing service of the Southern Pacific Company-Atlantic steamship lines between New York and New Orleans and New York and Galveston is in the interest of the public and of advantage to the convenience and commerce of the people. (45 I. C. C., 505.)

The Car Peddling Case

Nebraska State Grange et al. v. Union Pacific et al. Opinion by Commissioner Harlan:

During the fall of 1915 certain carriers operating in the Middle West took steps to put an end to the peddling or retailing of fruits, vegetables and other commodities from cars in railroad yards.

The commission holds that the view that the use by a shipper of a car on the carrier's tracks at destination as a place for peddling or vending to the public the carload shipment arriving in it as a service of transportation has no sanction at common law or in the act to regulate commerce; and the mere toleration by certain carriers through a period of years of such a use of their property affords no basis for a ruling that the practice has grown into a shipper's right and a carrier's duty.

Tariff items providing free time for unloading and demurrage charges for a further detention of a car for that purpose, do not embrace the use of the carrier's equipment and station grounds as a place where the carload shipper may transact business with the public for his own profit.

The business of a carrier is transportation, and its property may not be subjected against its will to a use not connected with transportation.

Discrimination in according or withholding a car-peddling privilege is condemned, but a distinction is made between car peddling and consolidated shipments to agents of granges and other farmer organizations. (45 I. C. C., 494.)

Milk and Cream Investigation

Milk and Cream Rates to Philadelphia. Opinion by Commissioner McChord:

Rates for the interstate transportation of milk, cream, condensed milk, skimmed milk, buttermilk and pot cheese to Philadelphia, Atlantic City and Cape May, N. J., and points on the New Jersey seacoast between the two latter points from points on the lines of the Pennsylvania Railroad, the Philadelphia, Baltimore & Washington, and the West Jersey & Seashore, and to Philadelphia from points in New Jersey on the Philadelphia & Reading, and from points on the Baltimore & Ohio are found to be unreasonable and prejudicial to producers and shippers from near-by points and preferential to producers and shippers from distant points. Reasonable maximum and non-prejudicial rates are prescribed for the future.

The milk and cream supply of Philadelphia is procured in New Jersey, New York, Delaware, Maryland and Pennsylvania, a large part being produced at points within 100 miles of the city and moving over intrastate routes.

The transportation of milk and cream to Philadelphia has developed from an adjunct of the passenger business. Originally milk and cream were transported in baggage cars in passenger trains. On the Pennsylvania the movement of milk in milk cars in passenger trains has been succeeded by a movement in milk trains, excepting cars brought from branch-line points

in passenger trains and later consolidated into milk trains, and occasional movements to Philadelphia in passenger trains. The volume of the latter traffic on the Pennsylvania is small.

During 1915 the amount of milk and cream transported to Philadelphia by the Pennsylvania was 93,675,462 quarts, by the Philadelphia & Reading, 53,938,435 quarts; and by the Baltimore & Ohio, 11,907,916 quarts. During that year electric lines transported 7,115,605 quarts; express companies, 6,991,480 quarts; and wagons and trucks, 4,800,000 quarts. The total receipts of 178,000,000 quarts compared with 120,000,000 in 1905 and 78,000,000 in 1887.

Milk and cream are sold to Philadelphia dealers on two bases. Under one basis the farmers sell the milk at a price delivered in Philadelphia. The farmers own the cans, clean them, tender the loaded cans at a milk platform owned by the carrier, and pay the transportation charges. The farmers do not own or operate milk-receiving stations. The farmers ship two-thirds of the milk and cream shipments over the Philadelphia & Reading, one-sixth of those over the Baltimore & Ohio, and some of those over the Pennsylvania. Until recent years substantially all shipments to Philadelphia were forwarded by farmers. Under the other basis Philadelphia dealers establish receiving stations at various points and install machinery for cooling the products and cleaning the cans. At a few points receiving stations are operated by independent companies which ship to dealers, the latter paying the transportation charges.

The Pennsylvania and Baltimore & Ohio have milk departments in charge of the milk business. Employees of these departments accompany cars to receive shipments, distribute the empty cans, and attend to billing and checking. The Reading has no separate milk department, but contracts with a dairy company to which it pays 20 per cent of its gross receipts on shipments secured from that company.

The Pennsylvania publishes rates on a zone system, the rates ranging from 20 cents for L. C. L. and 17.4 cents C. L. for 40-quart cans moving from 1 to 30 miles to 36.8 L. C. L. and 31.9 C. L. from 501 miles or more. The L. C. L. rates include icing, and rates include the return of the empty containers. Carload shipments are iced by dealers.

The Pennsylvania presented a careful analysis of the costs of handling this traffic, whereby it was shown that the actual earnings for the year from milk and cream traffic on the Philadelphia division were \$207,455. The expense on account of this traffic, as shown by the above table, was \$182,525, leaving a net revenue of \$24,930, or an operating ratio of 87.98 per cent. The figures do not include taxes. The operating ratio so ascertained for the milk traffic is compared with operating ratio of 76.67 per cent for the year 1914 for all traffic on the Pennsylvania Railroad, and on all traffic on the Philadelphia division for the same period of 72.06 per cent.

From the facts of record the commission is unable to find that the revenue received by the Pennsylvania from the rates on shipments of milk and cream to Philadelphia and the other points involved is unreasonably high.

It finds, however, that the present zone adjustment is unreasonable and prejudicial to producers and shippers from near-by points, and unduly prefers producers and shippers from distant points.

It establishes new L. C. L. rates for milk moving over the Pennsylvania, the Philadelphia, Baltimore & Washington and the West Jersey & Seashore to Philadelphia. Atlantic City and Cape May, and points on the New Jersey coast between the two last named points, in baggage, milk or refrigerator cars, in milk or passenger trains, iced when necessary, such rates to include the return of the empty containers. These rates are for 40-quart cans, and are based on a mileage scale with 10-mile divisions, ranging from 15.5 for 10 miles or under to 35.5 at 300 miles, and 48.5 to over 620, but not over 630. Rates for 20-quart and other cans are to be based on these on prescribed percentages. It is further found that the rates on cream and condensed milk should not exceed those on milk by more than 25 per cent. Carload rates may not exceed 87½ per cent of the less-than-carload rates.

Similar findings are made as to the rates on the Reading and Baltimore & Ohio. (45 I. C. C., 37.)

Ida S. Graustein v. Boston & Maine et al. Opinion by Commissioner McChord:

Reparation of \$30,519 is awarded for violations of the pro-

visions of the act by the Boston & Maine and the Rutland with respect to rates charged, train service and equipment furnished for transportation of milk in carloads from points in Vermont to Boston, Mass. (45 I. C. C., 393.)

Milk and Cream Rates to New York City. Opinion by Commissioner McChord:

Rates for the interstate transportation of milk, cream, condensed milk, skim milk, buttermilk, and pot cheese, in carloads and less than carloads, to Weehawken, Hoboken, and Jersey City, N. J., and New York, N. Y., from points on lines of respondents are found to be unreasonable and prejudicial to producers and shippers from near-by points and preferential to producers and shippers from distant points, and reasonable and non-prejudicial basis of rates prescribed for the future.

The rates prescribed are the same as those in the case above, *Milk and Cream Rates to Philadelphia*.

New York City secures the greater part of its milk from the eastern and central part of the state of New York, from points on and east of the line of the Pennsylvania Railroad extending from Sodus Point to Elmira, N. Y. Some is secured from western New York, northern Pennsylvania and New Jersey, Vermont, and western Massachusetts and Connecticut. All milk originating on the New York Central and on the West Shore west of Albany, N. Y., practically all on the Delaware & Hudson, the New York, Susquehanna & Western, and some on the Rutland and the Central New England, aggregating about 30 per cent of the total, is transported over intrastate routes.

Milk and cream are transported to the New Jersey terminals and to New York City almost wholly in milk cars in milk trains. Some cars are hauled in passenger trains in pick-up service on branch lines. There is practically no movement in baggage cars except some cream by express, which is negligible in quantity. There is no movement in freight trains. The 40-quart can is the standard container on shipments to New York. Rates on 40-quart cans, in less than carloads, are the basic rates in relation to which other rates have been made.

The receipts, reduced to a basis of 40-quart cans, in 1915 were as follows:

Carrier	Delivering point	Number of cans	Percent- age of total
New York Central.....	Melrose Junction, Bronx; 130th street, Manhattan.....	6,700,934	33.3
West Shore	33d street, Manhattan..... Weehawken, N. J.....	884,613	4.4
Total N. Y. C. lines.....		7,585,547	37.7
Erie	Jersey City, N. J.....	2,922,888	14.5
N. Y., S. & W.....	Jersey City, N. J.....	574,565	2.8
Total Erie lines.....		3,497,453	17.3
D., L. & W.....	Hoboken, N. J.....	3,176,246	15.8
N. Y., O. & W.....	Weehawken, N. J.....	2,511,754	12.5
Lehigh Valley	Jersey City, N. J.....	2,123,704	10.5
Pennsylvania	Jersey City, N. J.; Flatbush avenue, Brooklyn	471,458	2.3
N. Y., N. H. & H.....	Harlem River, Bronx	334,165	2.1
Total rail carriers.....		19,700,327	98.2
Other sources		365,000	1.8
Total		20,065,327	100.0

A large proportion of milk and cream shipped to New York is received at stations owned by dealers. The respondents operate trains so as to deliver milk and cream in time for dealers to prepare shipments for morning delivery, the trains generally arriving between 9 p. m. and 1 a. m. Each carrier has one or more terminals for the use of its milk traffic. The Pennsylvania delivers milk at Jersey City and Brooklyn, N. Y., a higher charge being collected for deliveries to the latter point. At each of the terminals a force of men is specially employed to unload the milk and load the empty containers. With each milk train there are sufficient employees to load and ice the cars and unload empty containers.

In 1897 the larger part of milk and cream consumed in New York City was produced in the first and second zones, within 100 miles of New York City. At the present time much of the milk shipped to New York is transported more than 400 miles. During the first week in June and in December, 1915, shipments from points on the New York Central to New York City moved from the following zones: First zone, 1 to 40 miles, none; second zone, 41 to 100 miles, 6,336 quarts; third zone, 101 to 190 miles, 44,636 quarts; fourth zone, but not more than 325 miles from the terminals, 520,280 quarts; fourth zone, from

points 325 to 400 miles distant, 153,482 quarts; and fourth zone, from points more than 400 miles distant, 786,158 quarts. The dealers testified that in the future the supply would be drawn from greater and greater distances.

The commission, as in the Philadelphia case, finds that on the whole the rates are not unreasonable. The present rates are on a zone system established as a result of the commission's findings in 1897. The commission notes conditions have changed materially since that decision was rendered, especially as to the increased distance from which the supply is obtained. It accordingly, as in the other case, holds that the present rates are prejudicial against shippers from the nearer points, and orders a readjustment, as above noted. (45 I. C. C., 412.)

Bituminous Coal to Central Freight Association Territory

Opinion by the commission:

These cases, consolidated for hearing, involve: (1) the reasonableness and non-discriminatory character of rates on bituminous coal from the Ohio mining districts to that portion of central freight association territory which is described and delimited in the report as "affected" territory; (2) the reasonableness and non-discriminatory character of rates from the Ohio mining districts and from districts in Pennsylvania, Maryland, West Virginia, Virginia, Kentucky, and Tennessee, collectively referred to in the report as the "Crescent," to certain interior cities in Michigan; (3) the propriety and reasonableness of increased rates proposed to be made effective from the Crescent to affected territory; (4) the proper relation of the rates, or the measure of the differential, to be observed between the rates from the Ohio and "inner Crescent" districts to affected territory; (5) the proper relation of rates, or the measure of the differential, to be observed between the rates from the Connellsville district in Pennsylvania and the Pittsburgh and other competitive districts in Pennsylvania; (6) the question whether or not the rates from the Pocahontas district in West Virginia to Canton, Ohio, should be the same as to Cleveland, Ohio.

In a comprehensive sense the origin territory from which rates on bituminous coal are here involved comprises (1) all mining districts in the state of Ohio; (2) the districts in an extensive zone embracing substantially all that portion of the Appalachian coal-producing region that extends from western Pennsylvania through Maryland, West Virginia, southwestern Virginia, and into eastern Kentucky and Tennessee. This part of the Appalachian zone is shaped, in its geographical configuration, somewhat like a crescent, presenting toward the Ohio districts and central freight association territory its concave side. Because of this geographical feature, the districts within the zone are, collectively, and, in the parlance of transportation and the coal trade, commonly referred to as the "Crescent."

The rates from all this territory are made upon the group principle. Differences in the rates from the various districts depend upon fixed differentials. The various individual mining districts in the Crescent from which increased rates are proposed may be classified in two general groups: (1) Certain districts forming the inner or concave side of the Crescent, hereinafter referred to as the "inner Crescent," which take a differential over the Ohio districts to all destination territory here involved, of 25 cents per ton, uniformly; (2) certain other districts from which the rates are higher by fixed differentials than from the inner Crescent. The districts comprising the inner Crescent lie nearest to the destination territory and to the westward of the second group of individual districts which constitute an outer and parallel chain of mining districts that may for purpose of distinction be called the "outer Crescent." From the latter the rates, present and proposed, are differentially higher than from the inner crescent by from 10 to 20 cents per ton. (The term "present rates" refers to the rates complained of and those in effect during the pendency of the proceedings and at the time the cases were submitted upon argument, and not to the rates which by reason of uniform increases in all coal rates have become effective since June 30, 1917.) Midway between the Pittsburgh and the Meyersdale districts in the inner and outer Crescents, respectively, lies the Connellsville district from which the rate westbound is in nearly all instances 15 cents higher than from the Pittsburgh district.

The principal district designations in the inner Crescent group are the Pittsburgh district in western Pennsylvania; the Fair-

mont and Kanawha districts in West Virginia; the Kenova-Thacker district lying partly in West Virginia and partly in Kentucky; the Elkhorn district in eastern Kentucky; and the Jellico district lying in eastern Kentucky and eastern Tennessee. The principal district designations in the outer Crescent are the Meyersdale district in Pennsylvania, the Cumberland-Piedmont district in Maryland and West Virginia, the Coal & Coke Railway, New River and Pocahontas districts in West Virginia, the Clinch Valley district in Virginia, and the Stonega district which lies in the pocket of southwestern Virginia and eastern Kentucky.

The Ohio origin districts are the Hocking, Jackson, Pomeroy and Cambridge in southeastern Ohio; the No. 8 district in eastern Ohio lying just west of the Pittsburgh district of Pennsylvania; and the Middle, or Goshen, and Massillon districts in the northeastern quarter of Ohio. The Middle and Massillon districts are of minor importance, because the volume of coal shipped is insignificant, relatively, and the rates therefrom are always made differentially lower than the general scale from the other Ohio districts.

There are numerous subdivisions of the before-mentioned individual districts.

The territory to which the proposed rates apply is that portion of central freight association territory embraced in the northwestern quarter of Ohio; the northeastern quarter of Indiana; and the entire lower peninsula of Michigan. The territory thus limited is referred to as the "affected" territory in distinction from the nonaffected territory, so called, which comprises that portion of central freight association territory to which no increased rates are proposed in the tariffs here under suspension.

The commission's findings are as follows:

GENERAL.

1. That the rates on bituminous coal from all the territory here involved have long been established upon the group principle and apply from three general rate groups which may be denominated (a) the Ohio group, (b) the so-called inner Crescent group, and (c) the so-called outer Crescent group, which are delimited in the report.

2. That the issues in these cases which appear to affect, directly or indirectly, the general group adjustment, may be resolved, in the final analysis, into questions relating to the measure of differentials or relationship of rates: (a) Between certain of the general groups, e. g., as between the Ohio and inner Crescent group; (b) as between the Connellsville district in Pennsylvania and the Pittsburgh and other competitive districts.

3. That a wider differential between the rates on bituminous coal from the Ohio group and the Crescent groups to that portion of central freight association territory called affected territory than obtains from the same groups to that portion of central freight association territory denominated nonaffected territory, is justified by dissimilar circumstances and conditions.

AS TO OHIO RATES.

1. That the rates under attack from the Ohio group to affected territory are not unreasonable.

2. That the rates from Ohio mines to the interior Michigan cities are not unreasonable in and of themselves, but that the rate of \$1 from Ohio mines to Toledo, Ohio, is, and for the future will be, unduly prejudicial against the interior Michigan cities and unduly preferential of Toledo, Ohio, to the extent and in the amounts specified herein.

3. That the 85-cent rate from the Hocking district to Toledo, Ohio, established since the inception of this proceeding, enhances and intensifies the undue prejudice against the interior Michigan cities that already existed under the \$1 rate to Toledo.

AS TO THE CRESCENT RATES.

1. That the rates from the Crescent groups to affected territory complained of and under investigation in this proceeding are below the level at which maximum reasonable rates might be maintained from the Crescent groups to affected territory.

2. That the rates from the inner and outer Crescent groups to Toledo, Ohio, are unduly prejudicial to the interior Michigan cities and unduly preferential of Toledo, Ohio, to the extent and in the amounts specified.

3. That the proposed rates from the inner and outer Crescent groups to destinations in affected territory have been justified.

4. That the differential of 25 cents per ton between the rates

from the Ohio and inner Crescent districts to affected territory is, and for the future will be, unduly prejudicial to the Ohio districts and unduly preferential of the inner Crescent districts to the extent that the said differential between the said Ohio and inner Crescent districts is less than 40 cents per ton, and that it is, and for the future, will be, unduly prejudicial to the inner Crescent districts and unduly preferential of the Ohio districts to the extent that the said differential is more than 40 cents per ton.

5. That the proposed rates from certain districts in the inner and outer Crescent groups to Columbus, Ohio, have been justified.

AS TO THE CONNELLSVILLE DIFFERENTIAL.

1. That the rates from the Connellsville district to points in Ohio, south of the territory west of the Sandusky-Galion line but substantially equidistant from the Connellsville district as the Sandusky-Galion line, and to all other points in central freight association territory west of the southerly Ohio points aforesaid, and on and west of the Sandusky-Galion line, are, and for the future will be, unduly prejudicial to the Connellsville district to the extent that the said rates from the Connellsville district exceed the rates contemporaneously in effect from the Pittsburgh district.

2. That the rates from the Connellsville district to Youngstown, Ohio, and points taking Youngstown rates, are, and for the future will be, unduly prejudicial to the Connellsville district and unduly preferential of the Pittsburgh district to the extent that the rates from the Connellsville district exceed the rates contemporaneously in effect from the Pittsburgh district by more than 8 cents per short ton.

3. That the rates from the Connellsville district to Cleveland, Ohio, and other points in affected territory in Ohio, east of the Sandusky-Galion line other than points taking Youngstown rates, are, and for the future will be, unduly prejudicial to the Connellsville district and unduly preferential of the Pittsburgh district to the extent that the rates from the Connellsville district exceed the rates from the Pittsburgh district by more than 6 cents per short ton.

AS TO CANTON, OHIO.

That the rates from the Pocahontas district in West Virginia to Canton, Ohio, should not exceed the rates contemporaneously in effect from the Pocahontas district to Cleveland, Ohio, and the proposed rates have been justified.

The respondents will be required to remove the unlawful discriminations found to exist against Ohio and in favor of the inner Crescent districts. They will also be required to remove the undue prejudice against the interior Michigan cities and the undue preference of Toledo. In so far as the unlawful discriminations against the interior cities in Michigan must be removed by reductions in the rates to such cities, the reductions may be made effective on five days' notice to the Interstate Commerce Commission and the general public.

Orders will be entered in accordance with the findings herein. (46 I. C. C. 66)

Lake Cargo Coal Rates

Opinion by the commission:

This proceeding involves the reasonableness and propriety of the rates, rules, regulations, and practices applicable to shipments of bituminous coal in carloads from mines in Pennsylvania, Maryland, West Virginia, Virginia, Kentucky, and Ohio, to Lake Erie ports for transshipment by vessel. The commission holds that

The reasonableness *per se* of the rates can not now be determined because of the abnormal conditions prevailing.

The rate adjustment is found to be unduly preferential and prejudicial; and specific relationships in the rates as between the several originating districts are ordered for the future.

The respondents are required to state separately in their tariffs the charges for the line haul and the dock services, respectively.

The rates considered are those in effect prior to the recent increase of 15 cents per ton.

In one part of the case complaint was made against the reasonableness of the 78 cent rate on lake cargo coal from the Pittsburgh district to Ashtabula via the Pennsylvania and New York Central lines. The complainant asserted that the cost of transporting

lake cargo coal to Ashtabula has been downward since 1911 for the following principal reasons:

- (a) The load per car has increased;
- (b) The number of cars per train and the tons per train have increased;
- (c) The detention of cars at the lake ports is less because of change in the demurrage rules, the result being greater car efficiency.

The carriers, however, also submitted figures showing increases in the costs of equipment, and in costs of operation, whereupon the commission holds that: Considering the increased investment, the increase in wages, and all the other factors affecting the cost of transportation, the conclusion seems to be justified that up to June 30, 1916, there had been but little change since 1911 in the cost per unit of transporting lake cargo coal from the Pittsburgh district or the other districts, but assuming that the cost has been reduced we would not regard it as just and proper to take from the carriers all of the benefits resulting from their increased investments and the introduction of improved methods.

The principal part of the case, however, deals with the rate relationship of the several groups. The rates in issue were as follows:

Originating districts	Rates investigated	Rates now in effect
Ohio No. 8, Hocking, Cambridge.....	75	90
Pittsburgh	78	93
Fairmont, Connellsville	90	105
Kanawha, Thacker, Kenova, Kentucky.....	97	112
New River, Pocahontas, Cumberland-Piedmont, Meyersdale.	112	127

As hereinbefore stated, the principal interest of the interveners is in the rate relationship existing as between the several originating districts. Thus, the West Virginia and Kentucky interveners object to any widening of the differential over the rates from the Pittsburgh and the Ohio districts; the Connellsville interveners ask that the Connellsville district be accorded the same rate as the Pittsburgh district; and the Meyersdale district interveners object to being grouped with the New River and Pocahontas districts in southern West Virginia and ask to be grouped instead with the Fairmont and Connellsville districts. The Meyersdale interveners also claim discrimination in their rates as compared with the rates from Fairmont and Connellsville.

The commission after a careful investigation holds that the relationships should be readjusted so that they will be on the following basis:

- Ohio No. 8, Cambridge and Hocking districts, 3 cents under Pittsburgh district.
- Connellsville district, 6 cents over Pittsburgh district.
- Altoona district, 22 cents over Pittsburgh district.
- Fairmont district, 18 cents over Ohio No. 8, Cambridge, and Hocking districts.
- Meyersdale district, 16 cents over Connellsville district.
- Cumberland-Piedmont district, 12 cents over Fairmont district.
- Kanawha, Kenova-Thacker, and Kentucky districts, 28 cents over Ohio No. 8, Cambridge, and Hocking districts.
- New River and Pocahontas districts, 15 cents over Kanawha, Kenova-Thacker, and Kentucky districts.

Because the present rates on cargo coal appear to be regarded both by the shippers and the carriers as being in the nature of emergency rates, made necessary to a large extent by the conditions arising because of the world war, the commission does not attempt to pass upon the reasonableness *per se* of the rates on this traffic.

In the supplemental report in the Iron Ore Rate Cases, 44 I. C. C., 368, the respondents therein were ordered to establish and maintain separate charges for the services performed by them at their ore docks. The situation with respect to lake cargo coal is very similar, except the coal traffic moves in the opposite direction to that of the ore. Since some of the respondents now provide in their tariffs separate charges for the line-haul service and the dock service, respectively, the commission will, in the interest of uniformity, and in order that the shippers of lake cargo coal may know definitely and specifically for what services they are required to pay, and the amount thereof, require that each of the carriers respondent herein owning or operating coal docks at any of the lower Lake Erie ports hereinbefore named state in their tariffs the amount in cents per short ton charged against the lake cargo coal traffic (a) for the line-haul service from the mines to the docks at the lake port, and (b) for the service of transferring the coal from the cars to the vessel at the docks. (46 I. C. C., 159.)

PERSONNEL OF COMMISSIONS

John M. Reifsnider has been appointed a member of the Public Service Commission of Maryland in place of P. D. Laird, resigned.

C. H. Byers has been appointed district engineer of the Division of Valuation, Interstate Commerce Commission, Pacific district; and W. H. Davisson is appointed assistant district engineer.

COURT NEWS

Hours of Service Act—Separate Offices

A few hundred feet from a station a railroad company maintained an interlocking tower. An operator worked at the station from 7 a. m. to 7 p. m., when another operator removed the train register and order book to the tower, where all orders and messages pertaining to train movements were received and sent from 7 p. m. until 7 a. m. The Circuit Court of Appeals, Eighth Circuit, holds that the station and tower were not separate offices, but a continuously operated office, within the act, and the statute was violated by keeping such operators on duty longer than is permitted thereby at continuously operated offices.—*Illinois Central v. United States*, 241 Fed., 667. Decided March 14, 1917.

Workmen's Compensation Act Course of Employment

A yard engineman had turned in his engine about 6 a. m., having completed his work, and had also turned in his slip, showing that his run had been completed. Instead of leaving the yard by one of numerous streets, which he could have used, he walked along the tracks for 1,000 feet, and crossed over another street, and onto an elevated track on its other side, where he was struck and killed by a freight train. His purpose in going on the second track was to catch a passing freight train to ride to a point where he could collect his pay. The New York Appellate Division holds that decedent was not killed in the course of his employment, within the Workmen's Compensation Law.—*Ames v. New York Central*, 165 N. Y. Supp., 84. Decided May 2, 1917.

Look and Listen Rule in Texas

In a crossing accident case, in which the Texas Court of Civil Appeals reversed a judgment for the plaintiff and rendered judgment for the railroad, because of the contributory negligence of the driver of the automobile, for whose injuries the action was brought, in failing to keep a lookout for a train before driving on the crossing, the court stated the law on the subject as held in Texas to be as follows:

"We agree with the contention of appellees' counsel, to the effect that there is no statute in this state which requires one approaching a railroad crossing to stop, look and listen, or to do either; and we also understand that the appellate courts of this state have never held that a failure on the part of one approaching a railroad crossing to stop, look and listen, or to do either, in order to ascertain whether or not a train might be approaching, would, as a matter of law, constitute contributory negligence. But such is not the point here raised, and which we are discussing.

"We understand it to be the rule in this state that all adult persons, at all times and places, are required to use at least ordinary care for their own protection and safety, and if we correctly interpret the rule as laid down by the Supreme Court of this state in many cases, a person approaching a railroad crossing is required to use ordinary care to ascertain by some means whether a train might be approaching such crossing, with a view of avoiding contact with such train, and if such person about to make such a crossing, by the use of ordinary care in looking for the approach of a train to such crossing, can discover the approach of the train to the crossing in time to avoid contact and injury therewith, and fails to use such care, and the state of the evidence be such that it must follow that such failure must be held to have caused or contributed to the injury sustained, then such person is barred from recovery on the ground of contributory negligence."—*St. Louis S. W. v. Harrell* (Tex.), 194 S. W., 971. Decided May 9, 1917.

Equipment and Supplies

LOCOMOTIVES

THE TORONTO, HAMILTON & BUFFALO has ordered 6 switching locomotives from the Canadian Locomotive Company.

FREIGHT CARS

THE CHILEAN RAILWAY is inquiring for prices on 400 stock and 600 box cars of 30-ton capacity.

THE YOUNGSTOWN SHEET & TUBE COMPANY has ordered 20 hopper and 20 flat cars from the Pressed Steel Car Company.

THE AMERICAN RAILROAD OF PORTO RICO, through its purchasing agents, the International Supply Company, 30 Church street, New York, is inquiring for 50 20-ton narrow gage flat cars.

UNITED STATES GOVERNMENT. Reports have it that the Government will shortly place orders for about 17,000 cars for service with the forces in France. The cars, it is said, will be four-wheel flat bottom low side gondola cars of 12 metric tons capacity.

IRON AND STEEL

THE UNITED STATES GOVERNMENT is reported as having placed orders for 150,000 tons of rails for use in France.

MACHINERY AND TOOLS

THE DELAWARE, LACKAWANNA & WESTERN is asking bids on a number of machine tools.

THE BALTIMORE & OHIO has ordered 2 26-in. turret lathes for its Newark, Ohio, car shops.

THE UNITED STATES GOVERNMENT is asking for bids on about \$2,000,000 worth of machine tools for use in France, and the Pennsylvania Railroad, acting in behalf of the United States Government, is asking for bids on seven vertical boring and turning mills, two vertical turret lathes, one horizontal boring and drilling machine and a car wheel boring mill, which are required for the use of the regiment of engineers which it recently helped to raise.

TRACK SPECIALTIES

THE WABASH is inquiring for tie plates for 1918 delivery.

THE ANN ARBOR is in the market for 1,500 kegs of spikes for delivery the first half of 1918, and is also inquiring for 300,000 tie plates for delivery in 1917.

MISCELLANEOUS

ILLINOIS CENTRAL.—The road has recently awarded a contract to the Railroad, Water & Coal Handling Company, Chicago, for the construction of a 500-ton coaling station of the automatic bucket type at Lambert, Miss. The structure will have a concrete foundation and timber superstructure. A contract was also awarded to the same company for the construction of a similar station of 300 tons' capacity at Durant, Miss.

BOMBING A TRAIN.—Aeroplanes have descended low enough to bomb trains in motion. During the battle of the Somme, last summer, a train leaving Libercourt was attacked from an altitude of 800 feet near Ostricourt and six bombs were dropped. The engine was hit, became derailed, and two or three front coaches telescoped. A second train, following the first, was also attacked, and the two aviators fired 700 shots at the two trains. Seven aeroplanes immediately joined in the attack and dropped a total of 14 heavy and 34 smaller bombs. Many of the German soldiers were killed and all the machines returned safely.—*New York Tribune*.

Supply Trade News

J. H. Prior, chief engineer of the Illinois Public Utilities Commission, has resigned to open an engineering office in Chicago, Ill.

The Barrett Company, New York, announces the appointment of W. T. Kelley as railroad sales department representative, with headquarters at Pittsburgh, Pa.

The American Steel Export Company has appointed Woodburn's Limited, of Montreal, Canada, as its exclusive agents for the provinces of Ontario and Quebec.

F. P. Huntley, who has been connected with the Gould Coupler Company since its organization, about twenty years ago, has resigned from his position as vice-president and general manager.

William H. Ross has become associated with the Patton Paint Company, Milwaukee, Wis., and will represent the railway sales department as sales engineer, with headquarters at Pittsburgh, Pa.

Howard P. Cook, eastern representative of the Columbia Nut & Bolt Company, Bridgeport, Conn., left July 14 to enter military service with the quartermasters' supply department of the New York National Guard.

F. R. Cooper, formerly superintendent of motive power of the Kansas City Southern, and until recently connected with the Breakless Staybolt Company of Pittsburgh, Pa., has resigned from the latter company to become sales manager of the Gold Car Heating & Lighting Company, with offices at New York.

Jesse Hough, sales representative of the National Lock Washer Company, died at his home in Indianapolis, Ind., on July 23, after a seven months' illness. Mr. Hough had been associated with the National Lock Washer Company since January, 1913, and for 10 years prior to that time was storekeeper in the maintenance of way department of the Indianapolis Traction & Terminal Company.

The Ingersoll-Rand Company announces that at a meeting of the board of directors of the company, on July 25, J. H. Jowett, formerly general sales manager, was elected vice-president of the company, and that L. D. Albin, formerly assistant general sales manager, was appointed general sales manager. Mr. Jowett and Mr. Albin will continue to make the company's new York office, at 11 Broadway, their headquarters.

TRADE PUBLICATIONS

COMPRESSED AIR APPARATUS.—The following new forms have just been issued by the Ingersoll-Rand Company, 11 Broadway, New York: Form 8006, a 20-page catalogue on Imperial motor hoists and stationary motors; form 8212, a four-page bulletin on the Crown coal pick and core breaker; form 8213, a 16-page booklet on "Little David" pneumatic chipping, calking and scaling hammers, and form 9102, an eight-page bulletin on air receivers, pressure tanks and moisture traps. The catalogues are profusely illustrated and show tables of sizes and capacities.

IRON AND STEEL FOR EXPORT.—The English edition of the new 94-page iron and steel catalogue of the American Steel Export Company is now ready for foreign distribution. The Spanish, French, Portuguese, Italian and Russian editions are to be published shortly, now being in process of preparation. This catalogue contains much information, such as weights and measures in English and metric tables, and data covering such products as pig iron, billets, blooms, slabs and sheet cars, plates and shapes, tool steel, merchant bars and agricultural steel, wire products, pipe and tubing, rails and railway supplies, castings and forgings, sheet and tin plate, etc. The object of the catalogue is to inform overseas buyers concerning American sizes, weights, etc. The booklet also includes specifications covering tolerances and other valuable data.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company is contemplating the construction of a terminal at Tulsa, Okla. The plans for this work are as yet in a preliminary stage.

HILLSBORO, CYNTHIANA, BAINBRIDGE & CHILlicothe (ELECTRIC).—This company is contemplating the construction of a road between Hillsboro, Ohio, and Chillicothe, a distance of 42 miles. The right of way for the entire distance has not yet been secured, and construction is not expected to start for some time. J. W. Watts, Hillsboro, is president, and C. F. Clarke is chief engineer.

IBERIA, ST. MARY & EASTERN.—This road has completed plans for the construction of an extension from Shadyside, La., to Patterson, a distance of eight miles. Grading has been started and all material is on the ground. The line is expected to be ready for operation by the early part of November.

MISSOURI PACIFIC.—The contract for grading the four miles of track from the main line of the Central division to the cantonment site near Little Rock, Ark., and for the construction of four additional miles of track on the cantonment grounds, was awarded to J. J. Ball, Little Rock, and the track laying is being done by company forces. (July 27, p. 170.)

NEW YORK, NEW HAVEN & HARTFORD.—Bids have been received by this company, but contracts are not yet awarded for widening the present two-track South Boston cut to accommodate four tracks between South Bay Junction and the Boston freight terminal, a distance of about 2,500 ft.; also for constructing 11 over-head steel bridges. Ten of the bridges will be about 60 ft. long and one 70 ft. long. The improvements also include building a new automatic electrically operated pumping plant.

OREGON SHORT LINE.—This company will build 11 miles of road east of Idaho Falls, Idaho. The construction will be divided into two lines, one from Idaho Falls to a point 4 miles south, and the other from Firth to a point 7 miles north.

PENNSYLVANIA RAILROAD.—This company is building a reinforced concrete bridge to carry two tracks over the new location of Manatawny creek at Pottstown, Pa. The work is being carried out by company forces, and will cost about \$33,437. The course of Manatawny creek will be changed by the Eastern Steel Company to pass under the bridge in its new location.

SOUTHERN PACIFIC.—This company is rehabilitating a portion of one of its car shops at Sacramento, Cal., which was lately injured by fire. The work will cost approximately \$30,000.

SOUTHERN RAILWAY.—A contract has been given to Thomas Worthington, Birmingham, Ala., for the construction of a reinforced concrete viaduct at Twenty-first street, Birmingham, Ala., over the tracks of the Southern Railway System, Seaboard Air Line Railway and Louisville & Nashville. The new structure will be 80 feet wide, and will replace the present structure, which is of wood. It is expected that the work will commence at an early date.

TEXAS & PACIFIC.—This company is contemplating the construction of an eight-stall roundhouse at Texarkana, Tex. The plans, however, are not yet prepared and no definite information can be given for some time.

UNION PACIFIC.—This road will construct a double track line 20 miles long from Manhattan, Kan., to Junction City, for the purpose of improving the transportation facilities to Fort Riley. In addition the company has already put in new stations, freight sidings and enlarged the present facilities at a cost of approximately \$50,000.

WICHITA & WALNUT VALLEY (ELECTRIC).—This company will construct a road from Wichita, Kan., east to Augusta, then north to Eldorado and south from Augusta to Douglas and Winfield, a total distance of about 100 miles. The right of way for the entire distance has not yet been secured, but as soon as it is obtained construction will be started.

Railway Financial News

CHICAGO, MILWAUKEE & ST. PAUL.—The directors have issued a statement of their reasons for reducing the dividend on the common stock from 5 to 4 per cent, in which they say: "The evolution of the transportation industry and the changes in ownership of the railroads of the Northwest rendered it imperative to build to the Pacific Coast. This new line, 3,045 miles, necessitated an expenditure of \$260,000,000; and 658 miles of second main track has cost \$36,000,000. Large additions to the motive power and rolling stock of the company have cost \$61,000,000. To meet these expenditures the company, from time to time, issued its mortgage bonds, amounting to \$234,000,000, and also its capital stock, amounting to \$125,800,000. With the exception of about \$50,000,000 of these bonds, which bear 5 per cent, the interest rates are from 4 to 4½ per cent per annum. No short-time notes or car trust certificates have been issued. The fixed annual charges have been increased approximately \$9,500,000, mainly for the Puget Sound extension. At the time this extension was determined upon the board deemed its construction necessary in order to maintain and insure the future prosperity of the company, and subsequent events have fully confirmed its judgment in that respect. The resources of this vast domain of territory, tributary to this extension, are immeasurable, and have already furnished a large traffic, both freight and passenger, and will continue to furnish an increasingly larger traffic from year to year. And if conditions, such as cost of labor, fuel, material and supplies, had not radically changed, this company would have easily earned its interest charges, its usual dividends and a substantial amount of surplus. The increases in wages alone paid to the employees of this company for the half-year ended June 30 last amount to approximately \$2,000,000. Because of this radical change in operating conditions, the board has deemed it wise to pursue a conservative course. . . ."

CHICAGO & EASTERN ILLINOIS.—The foreclosure sale of this road has been postponed until some time next month.

CINCINNATI, HAMILTON & DAYTON.—The receivers, Judson Harmon and Rufus B. Smith, in a circular announcing the delivery of the principal C. H. & D. lines to the Baltimore & Ohio on July 19, as ordered by the court, say that they continue to operate the line from Dayton to Delphos until further notice, and the line from Berlin to Dean until August 1, 1917.

INTERBOROUGH RAPID TRANSIT COMPANY, NEW YORK CITY.—The New York State Public Service Commission, first district, has approved the application of this company for authority to issue five per cent bonds amounting to \$23,053,000. This money is needed to pay the excess of the cost of cars and motive power for new rapid transit lines, over and above the cost as estimated by the company in its report to the commission in March, 1913. The bonds are to be issued under the company's first mortgage of March 20, 1913, and will mature January 1, 1966. The commission stipulates that they shall be sold at not less than 93½. The Public Service Commission, also, after deferring action for several months, has finally approved the whole of the issue of bonds aggregating \$16,436,000, the proposal for which was laid before the commission last year, for similar expenditures.

PENNSYLVANIA.—The report of revenues and expenses for the month of June and for the six months to June 30, issued this week, and covering the whole of the Pennsylvania System, both eastern and western lines, shows, for the half year, total receipts of \$231,673,083, an increase of \$21,068,034 over the same period in 1916; but the increase in operating expenses and taxes was \$31,729,563, so that the railway operating income, \$39,603,819, is \$10,661,529 less than in the same six months of 1916. For the twelve months ending with this report the return on the property investment was 4.90 per cent, as compared with 6.02 per cent for the year ending June 30, 1916. The latest figure, 4.90 per cent, is, however, higher than that for any of the five years preceding that ending on June 30, 1916.

Railway Officers

Executive, Financial, Legal and Accounting

Arthur Lee, vice-president of the Coal & Coke Railway at Elkins, W. Va., has resigned; A. H. Crane has been appointed treasurer, vice C. M. Hendley, resigned, and the title of Charles Ritter has been changed from paymaster and cashier to assistant treasurer. Effective August 1.

S. G. Lutz, whose appointment as vice-president of the Chicago & Alton was announced in the *Railway Age Gazette* of July 27, was born on December 8, 1868, and was graduated from Western College, Toledo, Ohio, in 1887. He entered railway service in November, 1890, as a stenographer in the traffic department of the Iowa Central, and subsequently filled various clerical positions until September, 1894, when he became chief clerk in the freight traffic department. From January, 1898, to April, 1904, he was assistant general freight agent of that road, and was then until December, 1908, assistant general freight agent of the Minneapolis & St. Louis. He was freight traffic manager of both roads from December, 1908, to December, 1909, when he was appointed general freight agent of those roads, the Chicago & Alton and the Toledo, St. Louis & Western at Chicago. In November, 1910, he was promoted to traffic manager of the Minneapolis & St. Louis, and on August 1, 1915, became associated with the Chicago & Alton as general traffic manager, which position he held until his recent appointment as vice-president, as already noted.

Thomas J. Foley, who has been elected vice-president of the Illinois Central, with headquarters at Chicago, effective August 1, was born at Convoy, Ohio, on August 26, 1866, and entered railway service on December 20, 1878, as a telegraph operator on the Pennsylvania Lines West of Pittsburgh. In 1879 he became agent for the same road and later served successively as train despatcher at Ft. Wayne, Ind., chief despatcher, assistant trainmaster and transportation inspector of the Pennsylvania Lines. On June 1, 1901, he became associated with the Baltimore & Ohio as assistant general manager at Baltimore, Md. From 1903 to 1904, he was superintendent of the Chicago division of the same road, and in the latter year became general superintendent of the Wheeling system. In 1906 he became special inspector in the transportation department of the Union Pacific at Cheyenne, Wyo., and later was consecutively yardmaster, chief train despatcher and superintendent of terminals at Omaha, Neb., and assistant superintendent of the Nebraska division. On March



S. G. Lutz



T. J. Foley

15, 1910, he was promoted to assistant to the vice-president of the Illinois Central, and from May 1, 1910, to November, 1912, was assistant general manager of the Illinois Central, the Yazoo & Mississippi Valley and the Indianapolis & Southern. In November, 1912, he was promoted to general manager of the same roads, with headquarters at Chicago, which position he held until his recent election.

James T. Loree, general manager of the Delaware & Hudson at Albany, N. Y., has been granted leave of absence to enter military service, effective July 31, and F. P. Gutelius, vice-president at Albany, has taken over the duties of the general manager, with title of vice-president and general manager.

B. W. Taylor, general agent of the Southwest System of the Pennsylvania Lines West, at Louisville, Ky., has been elected also president of the Louisville Bridge Company in place of C. H. Gibson, deceased. This company is owner of the Louisville Bridge, the Pennsylvania Lines' entrance into Louisville.

Operating

J. W. Deneen has been appointed assistant superintendent of the Coal & Coke Railway, with headquarters at Gassaway, W. Va.

John J. Pelley, who has been appointed general superintendent of the southern lines of the Illinois Central, with headquarters at New Orleans, La., entered the service of the Illinois Central as a track apprentice on August 29, 1900. On August 1, 1904, he was appointed supervisor on the Indiana division, and on November 1, 1905, was transferred to the Memphis division of the Yazoo & Mississippi Valley. On January 15, 1908, he was appointed roadmaster on the Louisiana division of the Illinois Central, with headquarters at New Orleans. On June 6, 1911, he was transferred to the Tennessee division, and on May 10, 1912, was appointed superintendent of that division, with headquarters at Fulton, Ky. On September 15, 1915, he was promoted to superintendent of the Yazoo & Mississippi Valley, with headquarters at Memphis, Tenn., which position he held until his recent appointment as general superintendent of the southern lines of the Illinois Central, as already noted.

O. F. Johnson has been appointed assistant to the general manager of the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn.

Arthur M. Umshler, trainmaster on the Illinois Central, at Chicago, has been appointed terminal superintendent, with the same headquarters, succeeding Walter S. Williams, promoted.

D. E. Nichols, trainmaster on the Northern Pacific, at Staples, Minn., has been transferred to the Lake Superior division, with headquarters at Duluth, Minn., succeeding H. H. Maher, resigned.

W. D. Deakins, assistant trainmaster of the Chattanooga division of the Nashville, Chattanooga & St. Louis, has been appointed trainmaster of the Nashville division, succeeding E. W. Gaynor, promoted.

Harry W. Grenoble has been appointed assistant superintendent of the Cumberland division of the Baltimore & Ohio, with headquarters at Keyser, W. Va., succeeding J. W. Deneen, who has entered the service of another company.

L. A. Downs, general superintendent of the southern lines of the Illinois Central, with headquarters at New Orleans, La., has been transferred to Chicago and will have charge of the northern lines comprising the Chicago terminal, the Illinois, Indiana and



J. J. Pelley

Springfield divisions. The Illinois Central has divided its lines north of the Ohio river into two grand divisions, the western division comprising the Wisconsin, Minnesota and Iowa divisions.

The authority of the following officers of the Pennsylvania Railroad, with headquarters at Philadelphia, Pa., has been extended over the New York, Philadelphia & Norfolk: Frank C. Hoff, assistant to the general manager; J. C. Johnson, superintendent of telegraph; J. B. Fisher, superintendent of freight transportation; D. C. Stewart, superintendent passenger transportation; H. C. Bixler, superintendent of stations and transfers; T. S. Bell, superintendent of car service, and F. L. DuBosque, superintendent of floating equipment.

Walter Scott Williams, who has been appointed general superintendent of the western lines of the Illinois Central, with headquarters at Waterloo, Ia., was born at Quincy, Ill., on November 6, 1866. He entered railway service on October 1, 1888, with the Illinois Central, as a brakeman, and in January, 1889, was transferred to the position of switchman, serving subsequently as engine foreman and yardmaster. In January, 1891, he became conductor, and in July of the following year was made a brakeman on the Amboy division. In January, 1893, he was promoted to conductor on the Springfield division, and in May, 1904, became trainmaster of the same division. On December 20, 1910, he was appointed superintendent



W. S. Williams

of the Springfield division, and on October 15, 1912, was transferred to the Minnesota division in the same capacity. On July 15, 1913, he became superintendent of the St. Louis division, with headquarters at Carbondale, Ill., and in April, 1917, was promoted to superintendent of the Chicago terminals, which position he held until his appointment as general superintendent, as already noted.

Floyd Mays, trainmaster on the Yazoo & Mississippi Valley at Wilson, La., has been appointed superintendent of the New Orleans division, with headquarters at Vicksburg, Miss. Victor V. Boatner, superintendent of the New Orleans division, has been transferred to the Memphis division, with headquarters at Memphis, Tenn., succeeding John J. Pelley, promoted. Samuel J. Hays, trainmaster at Memphis, has been appointed terminal superintendent, with the same headquarters, succeeding John M. Walsh, resigned to enter military service.

The Baltimore & Ohio announces that the following lines of the Cincinnati, Hamilton & Dayton have been acquired, and will be operated as the Toledo division of the Northwest district of the Baltimore & Ohio, with division headquarters at Dayton, Ohio; Main line from Cincinnati to Toledo and terminals; Dayton to Wellston, with branches to Riverton, Buckeye Furnace, etc.; Ironton Junction to Berlin; Hamilton to East Middletown; Troy to Piqua; Deshler to Findlay; Tontogany to North Baltimore and the Home Avenue Railroad. The following former officers of the C. H. & D. retain the same positions in the new organization: H. B. Voorhees, general superintendent, at Cincinnati, Ohio; F. B. Mitchell, superintendent at Dayton; M. S. Kopp, assistant superintendent at Cincinnati; S. U. Hooper, assistant superintendent at Toledo; R. W. Brown, trainmaster at Dayton; C. W. Havens, trainmaster at Lima, and R. B. Fitzpatrick, trainmaster at Cincinnati. E. J. Correll, division superintendent at Dayton, has been appointed assistant superintendent at the same place. H. W. Brant has been appointed trainmaster at Dayton, and W. H. Crist, W. L. Augspurger and J. J. Fitzmartin, chief train despatchers, all with offices at Dayton.

John Bose, superintendent of the Louisville division of the Louisville & Nashville, has been appointed superintendent of the New Orleans & Mobile division, vice C. Marshall, retired from active service, and W. F. Sheridan, assistant superintendent of transportation at Louisville, has been appointed superintendent of the Louisville division, vice Mr. Bose; W. J. Haylow, inspector of transportation at Birmingham, Ala., succeeds Mr. Sheridan; J. A. Morrison, assistant superintendent of the Birmingham division at Birmingham, has been appointed superintendent of the Kentucky division, with headquarters at Paris, Ky., succeeding W. H. Anderson, deceased.

Albert E. Clift, who has been appointed general manager of the Illinois Central, with headquarters at Chicago, was born at Urbana, Ill., on October 15, 1869. He entered railway service



A. E. Clift

with the Illinois Central on December 5, 1888, as a brakeman, and on April 8, 1892, was promoted to conductor on the same road. On April 14, 1892, he became conductor on the Cleveland, Cincinnati, Chicago & St. Louis, and on February 19, 1893, returned to the Illinois Central as engine foreman of the Champaign district. From March 7, 1893, to February 22, 1905, he served consecutively as yardmaster, conductor of the Chicago district, passenger conductor Chicago division, acting trainmaster of the Chicago district at Kankakee, Ill., and trainmaster of the Chicago division. On the latter date he became superintendent of the Freeport division at Freeport, and on January 16, 1907, was transferred to the St. Louis division at Carbondale. On June 1, 1910, he was promoted to general superintendent of the southern lines, with headquarters at New Orleans, La., and on May 10, 1912, was appointed general superintendent of the northern and western lines at Chicago, which position he held until his appointment as general manager, as already noted.

Traffic

F. J. Burns has been appointed general agent on the Denver & Rio Grande, with headquarters at Leadville, Colo., succeeding S. M. Brown, retired on a pension.

E. L. Gamble, agent for the Western Pacific at Stockton, Cal., has been appointed general agent of the traffic and transportation departments, with the same headquarters.

W. T. Kyzer, agricultural agent of the Norfolk Southern at Norfolk, Va., having resigned, all matters heretofore handled by his office will be taken care of by E. D. Kyle, traffic manager.

T. T. Webster, chief of tariff bureau of the Michigan Central, has been appointed assistant general freight agent, with office at Detroit, Mich., vice F. H. Thompson, resigned to engage in other business.

G. W. Hibbard, general passenger agent, western lines, of the Chicago, Milwaukee & St. Paul, at Seattle, Wash., has resigned, effective August 1, and A. P. Chapman, Jr., general agent of the passenger department, has been appointed assistant general passenger agent, with headquarters at Seattle.

H. R. Judah, assistant general passenger agent of the Southern Pacific at San Francisco, Cal., has retired from active service under the company's pension system. Mr. Judah was born at New York on June 24, 1847, and entered railway service with the Southern Pacific on November 13, 1872. From that date until November 1, 1877, he was successively chief clerk to the freight auditor, ticket auditor and chief clerk to the general passenger and ticket agent. On November 1, 1877, he was promoted to assistant general passenger and ticket agent of the northern division, and on May 1, 1891, became assistant gen-

eral passenger agent, with headquarters at San Francisco, which position he held until his recent retirement.

Harold K. Faye, whose appointment as traffic manager of the Western Pacific was announced on July 27, was born at Aurora, Ill., in January, 1885. Mr. Faye received his early training in traffic matters under the late Darius Miller, formerly president of the Chicago, Burlington & Quincy. He began railway work as a stenographer in the general freight office of the Burlington at Chicago. In December, 1904, he was made secretary to Darius Miller, then vice-president in charge of traffic, and in June, 1909, was promoted to chief clerk in the same office. He was later promoted to assistant in the office of the vice-president, the position he has held until the present time. As traffic manager of the Western Pacific. Mr. Faye will have headquarters at San Francisco, Cal.



H. K. Faye

Albert T. Weldon, whose appointment as general freight agent of the Canadian Government Railways, with headquarters at Moncton, N. B., has already been announced in these columns, was born on March 6, 1876, at Dorchester, N. B., and entered the service of the Intercolonial Railway on August 24, 1890, as car checker at the local freight office at Moncton. In 1901 he became chief clerk to the division freight agent at Halifax, remaining in that position until 1904, and then left the service of the Intercolonial, but returned to that road on November 17, 1907, as division freight agent at Halifax. In 1909 he became general freight and passenger agent of the Black Diamond Steamship Line, owned and operated by the Dominion Coal Company. He went to the Canadian Government Railways as assistant general freight agent at Moncton on October 1, 1914, which position he held until his recent appointment as general freight agent, as above noted.



A. T. Weldon

H. S. Leard, general passenger agent of the Norfolk Southern at Norfolk, Va., has resigned, and J. F. Dalton has been appointed general passenger agent, in addition to his duties as general freight agent, with headquarters at Norfolk.

H. E. Warburton, division freight agent of the Cincinnati, Hamilton & Dayton, at Dayton, Ohio, has been appointed general freight and passenger agent for the receivers of the C., H. & D., lines Dayton to Delphos, Ohio, inclusive, and Berlin to Dean, Ohio.

Engineering and Rolling Stock

The authority of W. D. Faucette, chief engineer of the Seaboard Air Line at Norfolk, Va., has been extended over the Tampa & Gulf Coast.

S. L. Church, supervisor of the Pennsylvania Railroad at Lancaster, Pa., has been appointed division engineer of the Delaware division, with headquarters at Wilmington, Del.

L. C. Frohman has been appointed principal assistant engineer of the Florida East Coast, with headquarters at St. Augustine, Fla.; C. S. Coe, engineer maintenance of way at St. Augustine, having resigned to enter military service, his former position has been abolished.

The authority of J. T. Wallis, general superintendent of motive power of the Pennsylvania Railroad at Altoona, Pa., and of C. D. Young, superintendent of motive power of the Philadelphia, Baltimore & Washington, at Wilmington, Del., has been extended over the New York, Philadelphia and Norfolk.

F. J. Parrish, division engineer of the Cincinnati, Hamilton & Dayton, at Dayton, Ohio, is now division engineer of the C. H. & D. lines, now comprising the Toledo division of the Northwest district, of the Baltimore & Ohio, and H. G. Snyder and W. P. Ball have been appointed assistant division engineers. All with headquarters at Dayton. (See Operating Officers.)

W. D. Johnston, master mechanic of the Cincinnati, Hamilton & Dayton, at Dayton, Ohio, has been appointed master mechanic of the Toledo division of the Northwest district, of the Baltimore & Ohio, with office at the same place; M. P. Hoban has been appointed road foreman of engines at Dayton, and O. R. Stevens has been appointed road foreman of engines at Lima, Ohio. (See Operating Officers.)

The authority of the following officers of the Pennsylvania Railroad has been extended over the New York, Philadelphia & Norfolk: W. G. Coughlin, engineer maintenance of way at Philadelphia; C. H. Niemeyer, assistant engineer of maintenance of way in charge of roadway and track at Philadelphia; G. C. Koons, assistant engineer of maintenance of way in charge of bridges and structures at Philadelphia; J. C. Auten, principal assistant engineer at Wilmington, Del., and A. H. Rudd, signal engineer at Philadelphia.

Arthur N. Davidson, who was recently appointed principal assistant to the district engineer maintenance of way on the Baltimore & Ohio Southwestern at Cincinnati, Ohio, was born at Tippecanoe on November 2, 1880, and was educated at Denison University. He entered railway service with the Baltimore & Ohio in May, 1899, at Cleveland, and later served successively until October 10, 1906, as carpenter, axeman, levelman, chainman and transitman. On June 1, 1907, he was transitman on the Florida East Coast, and four months later he became field engineer for the Wood Harmon Company at Pittsburgh, Pa. On June 1, 1909, he was made deputy county engineer at Newark, N. J., and on June 1, 1910, he became assistant engineer on the Baltimore & Ohio at St. George, S. I., N. Y. On March 1, 1913, he was appointed district bridge inspector on the Cincinnati, Hamilton & Dayton at Cincinnati, after which he served consecutively as division bridge inspector at Indianapolis, Ind., and at Dayton, Ohio, and assistant engineer at Dayton. On September 1, 1916, he was promoted to assistant division engineer, which position he held until his recent appointment as principal assistant to the district engineer maintenance of way on the Baltimore & Ohio Southwestern.

Railway Officers in Military Service

E. W. Crabtree, despatcher on the Tennessee and Coosa branch of the Nashville, Chattanooga & St. Louis, has entered the signal corps of the army, and is in training at Ft. Oglethorpe, Ga.

D. C. Rhysburger, assistant engineer in the valuation department of the Chicago, Milwaukee & St. Paul, at Chicago, has been commissioned captain in the Engineer Officers' Reserve Corps, and has been assigned to Ft. Leavenworth, Kan. Phillip R. Elfstrom, assistant engineer at Chicago, and C. H. Poole, assistant engineer at Milwaukee, Wis., have been commissioned first lieutenants in the Engineer Officers' Reserve Corps. Lieut. Poole has been assigned to Ft. Leavenworth. C. U. Smith, assistant engineer at Milwaukee, is captain of the first battalion, Engineers, Wisconsin National Guard, and is stationed at Camp Robinson, Wis.

OBITUARY

C. M. Anderson, trainmaster on the Minneapolis, St. Paul & Sault Ste. Marie, at Ironwood, Mich., lost his life on July 23, in an effort to save his two sons from drowning.